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THE
VOYAGE OF H.M.S. CHALLENGER.

ZOOLOGY—VOL. XXX.
PLATES.

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REPORT

ON THE
SCIENTIFIC RESULTS

OF THE
VOYAGE OF H.M.S. CHALLENGER

DURING THE YEARS 1873-76

UNDER THE COMMAND OF
CAPTAIN GEORGE S. NARES, R.N., F.R.S.
AND THE LATE
CAPTAIN FRANK TOURLE THOMSON, R.N.

PREPARED UNDER THE SUPERINTENDENCE OF
THE LATE
Sir C. WYVILLE THOMSON, Knt., F.R.S., &c.
REGIUS PROFESSOR OF NATURAL HISTORY IN THE UNIVERSITY OF EDINBURGH
DIRECTOR OF THE CIVILIAN SCIENTIFIC STAFF ON BOARD.
AND NOW OF
JOHN MURRAY, LL.D., PH.D., &c.
ONE OF THE NATURALISTS OF THE EXPEDITION

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PLATES

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REPORT on the ASTEROIDEA collected by H.M.S. CHALLENGER during the years
1873-1876.

By W. PERCY SLADEN, F.L.S., &c.

*(The Manuscript was received in Instalments between 15th March 1886
and 21st January 1889.)*

EDITORIAL NOTE.

THE collection of ASTEROIDEA is one of the most important made during the voyage of the Challenger. The late Sir C. Wyville Thomson paid considerable attention to these organisms, and at one time had the intention of describing the new species discovered during the Expedition; with this end in view, indeed, he had a few of the specimens figured and lithographed.

Eventually, however, the whole collections were handed over to Mr. W. Percy Sladen for examination and description. The result of Mr. Sladen's work, extending over many years, is now presented in this magnificent Report, which forms Part LI. and Volume XXX. of the Zoological series of Reports, the text and plates being bound up in separate parts.

Not only on account of the large number of forms, but also on account of their representative character, the Challenger collection is unquestionably the most important contribution to this group of animals that has ever been made.

In the Report, supplementary to the treatment of the Challenger material, a compact account of the whole group has been aimed at. Thus (1) under each family an account of all the genera included therein, whether Challenger or not, has been given, and where necessary the grounds on which the classification has been adopted are discussed; (2) under each genus there is a statement of all the known species which are recognised as belonging to that genus, with an account of their geographical distribution: this presents a compact idea of the composition and distribution of each genus; (3) a complete list of all the known species of

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recent Asteroidea, with their geographical and bathymetrical distribution, and a full account of all synonyms and changes of name are given ; every known starfish is believed to be included, and the recognition of "good species" and "synonyms" is based on personal observation (except in the case of some American types and a few recently described from the French dredgings).

The Report may be considered a monograph on the group, though of course it need hardly be said that previously described and recognised species are not re-described. An entirely new classification of the Asteroidea has been given—it was very unsatisfactory and quite unworkable previously.

All naturalists who appreciate careful and accurate work will join with me in congratulating Mr. Sladen on the completion of his valuable memoir, which extends to 935 pages, and is illustrated by 118 lithographic plates and a map.

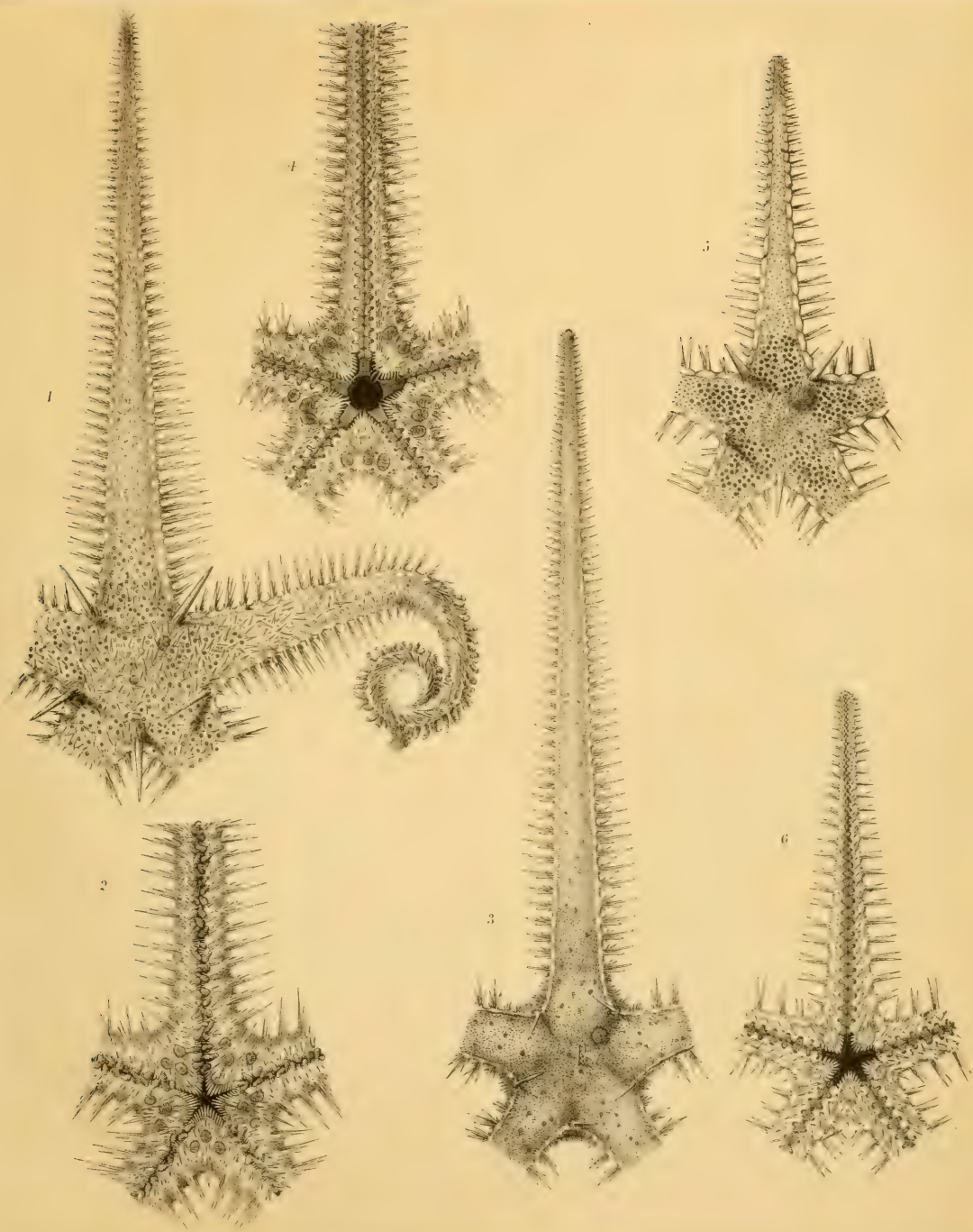
JOHN MURRAY.

CHALLENGER OFFICE, 32 QUEEN STREET,
EDINBURGH, *January* 23, 1889.

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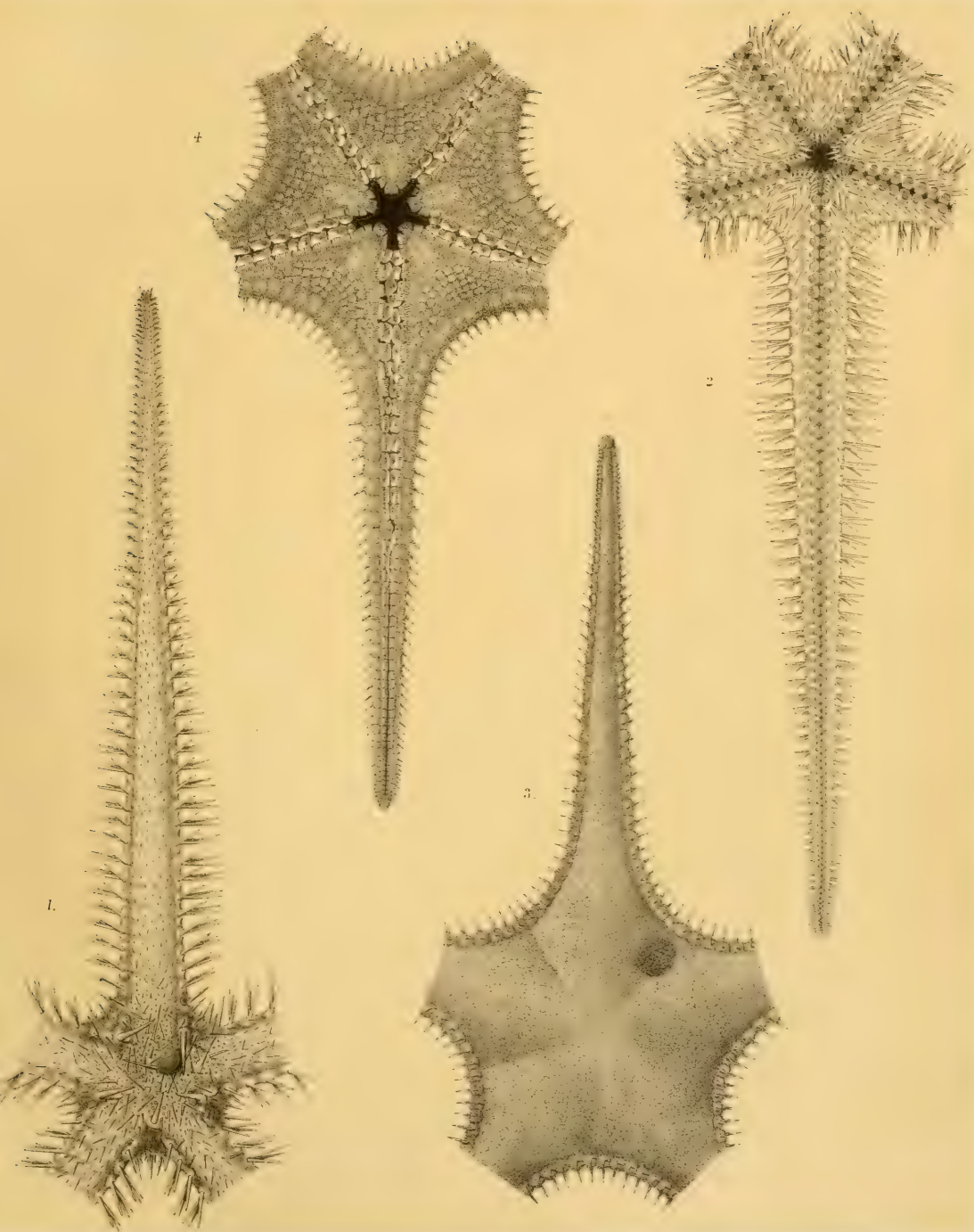
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Crowther del.

Mintern Bros. lith.

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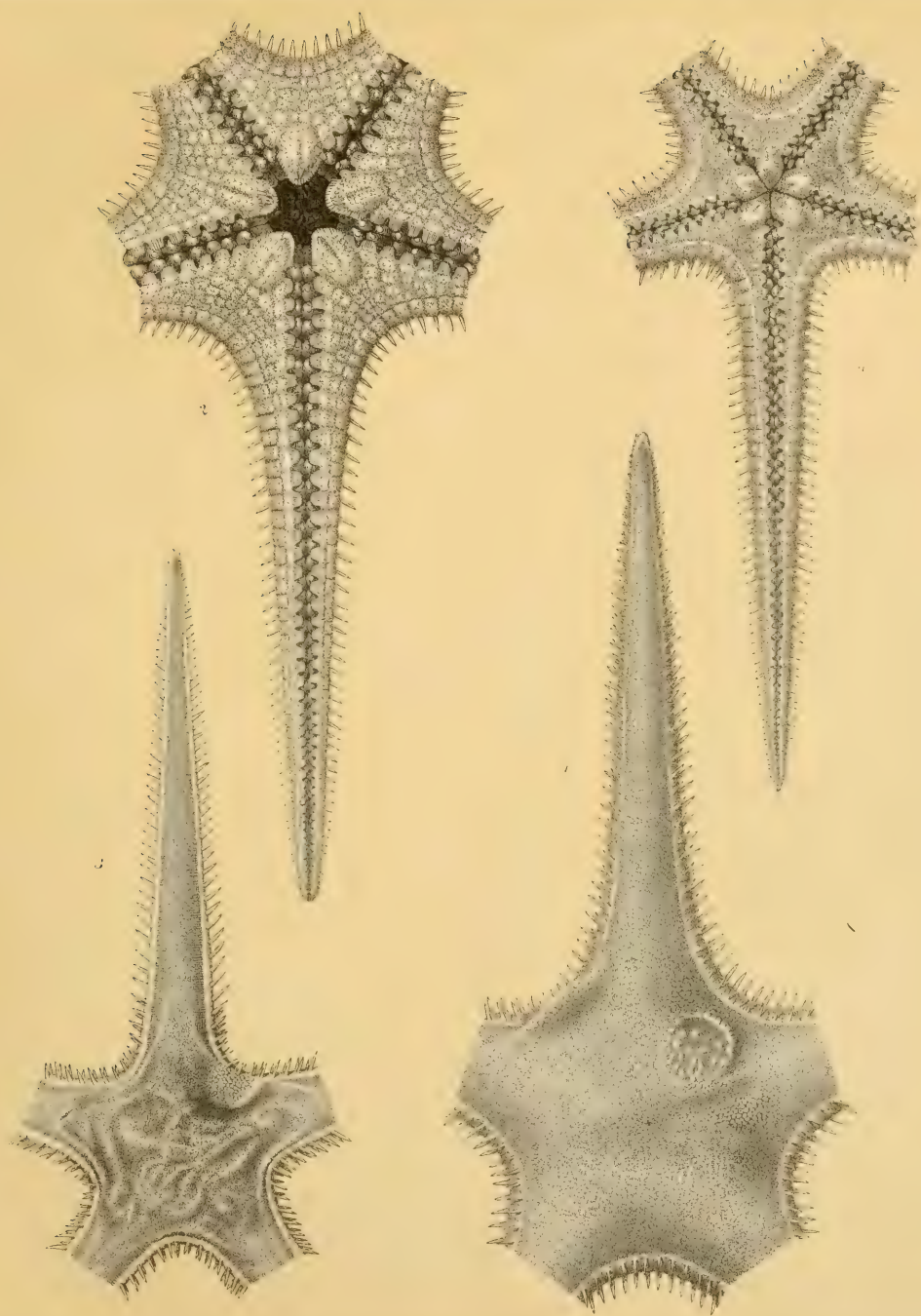


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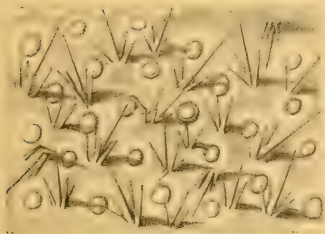
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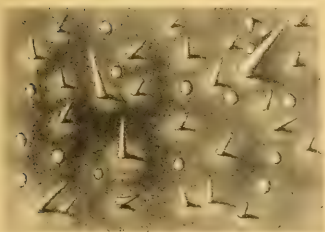
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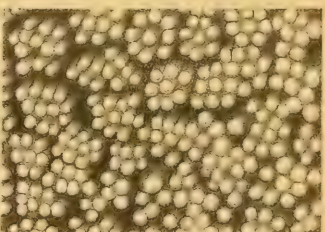
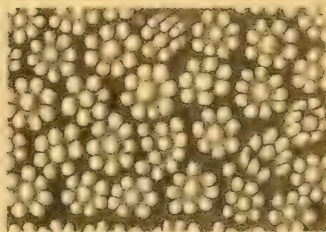
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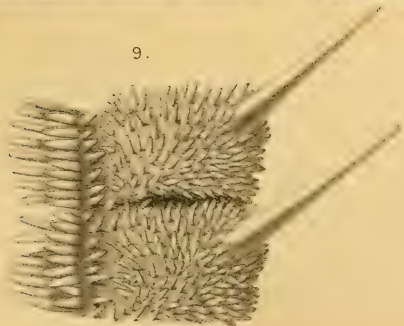
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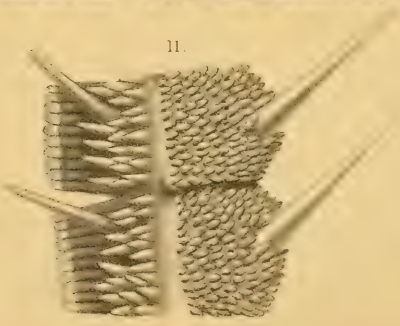
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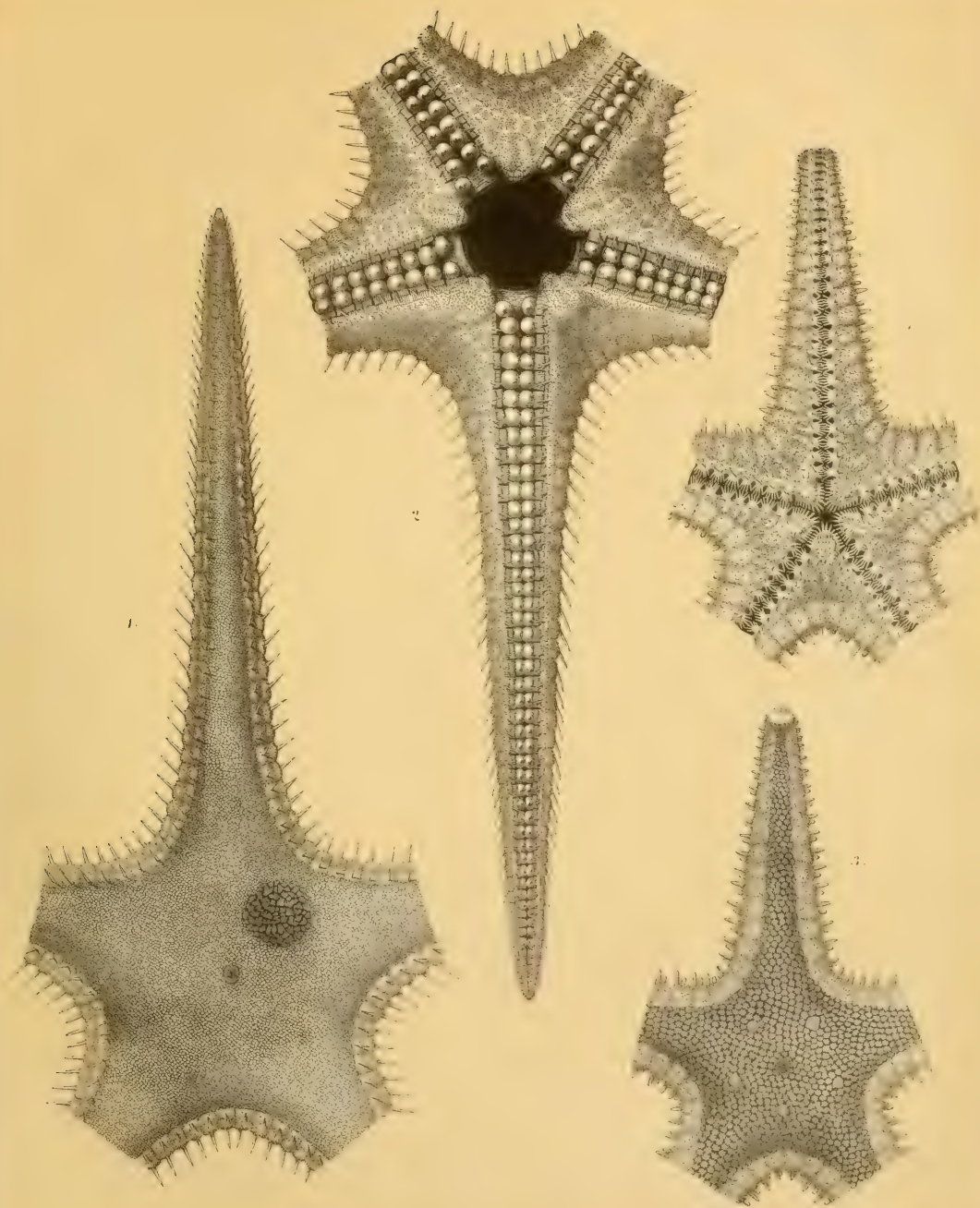


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W.H. Crowther del. H. Hollick lit.

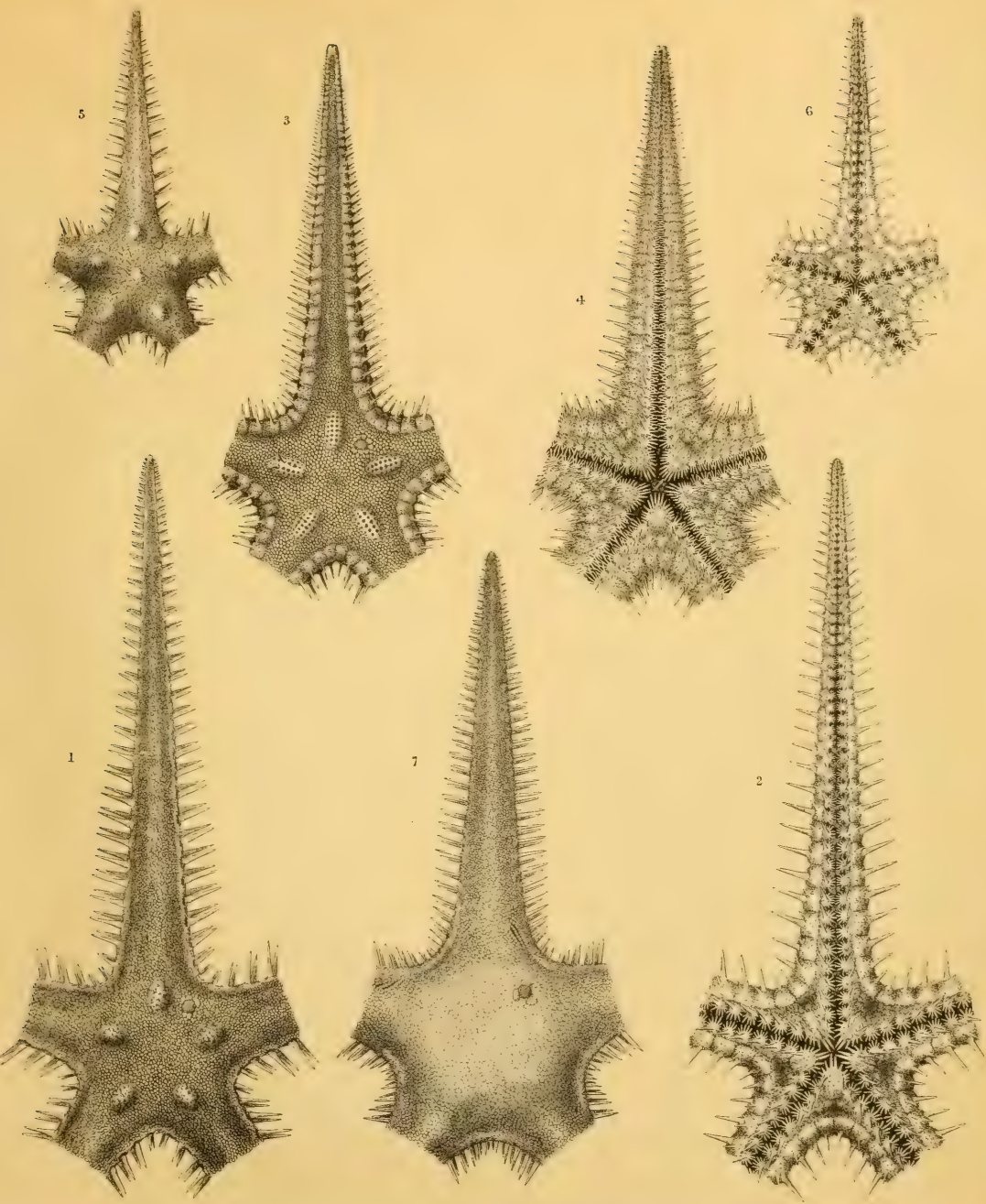
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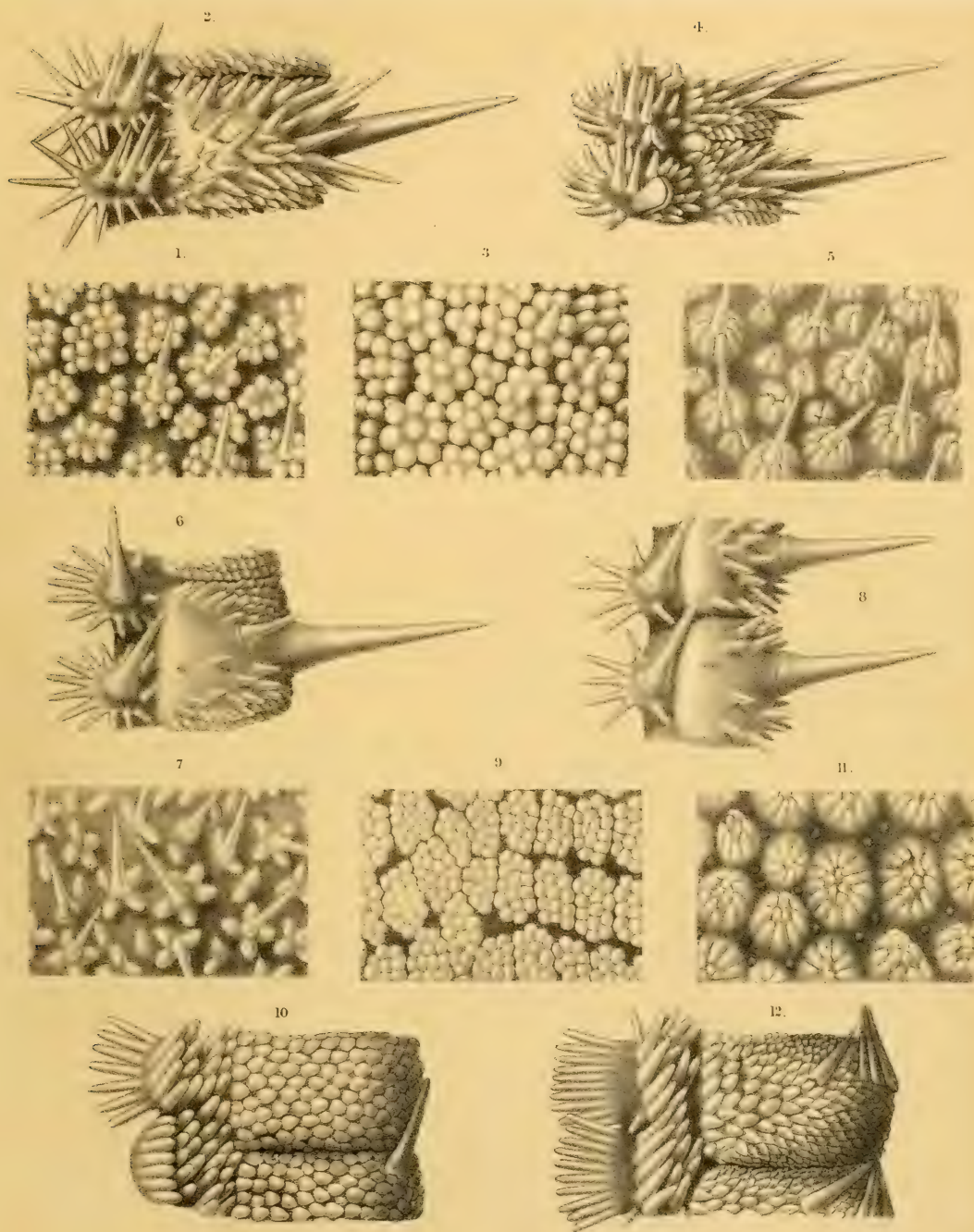
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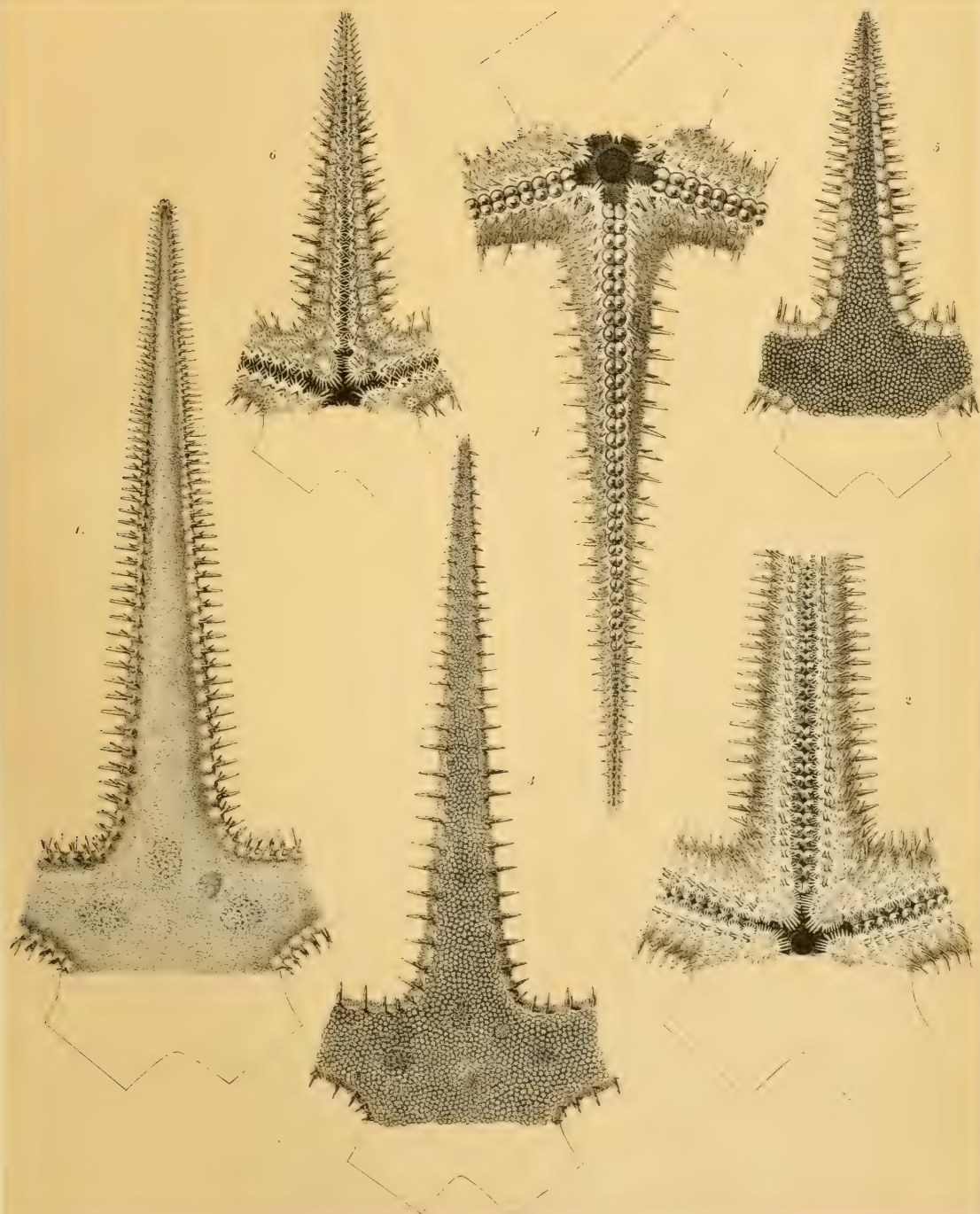
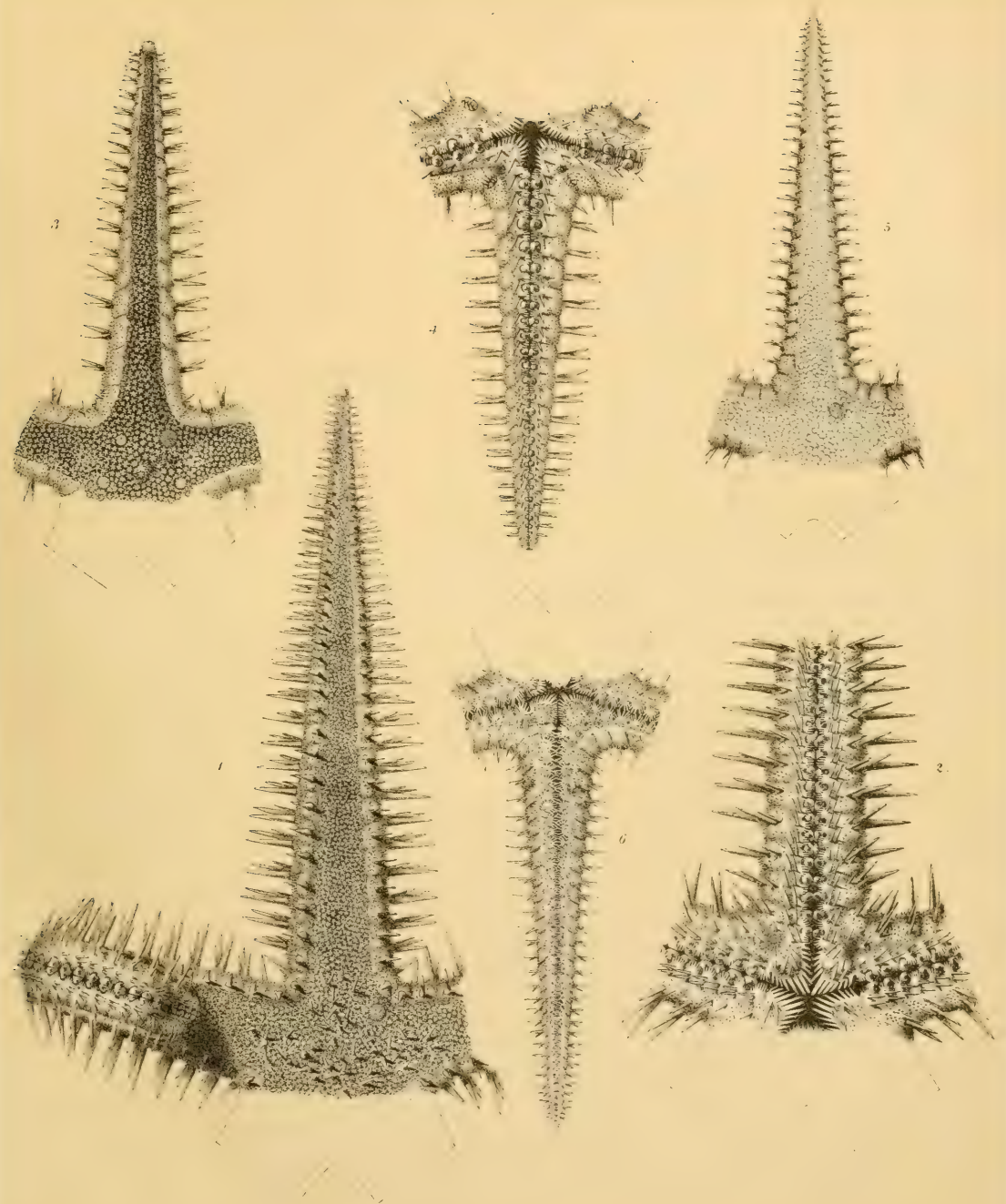


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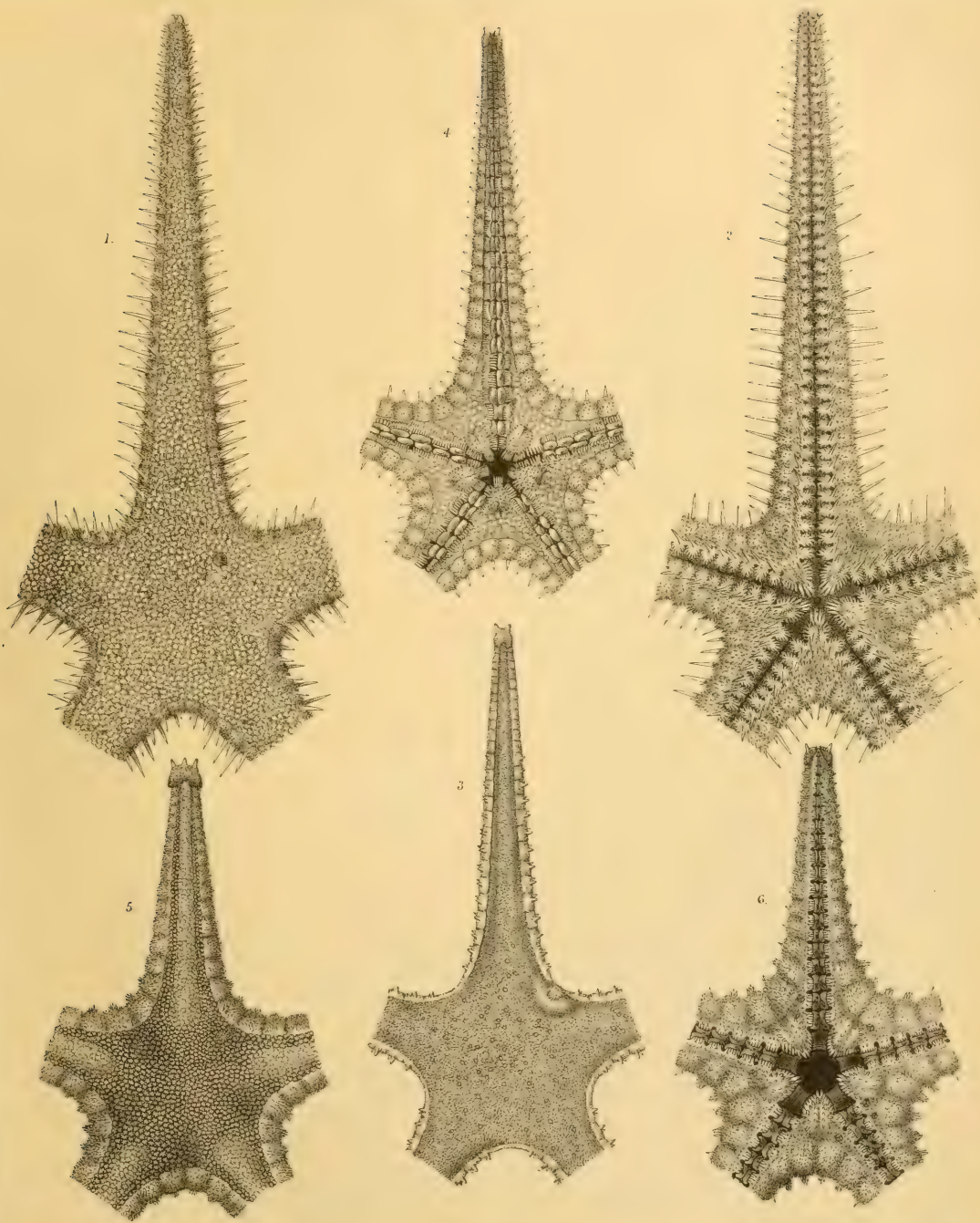
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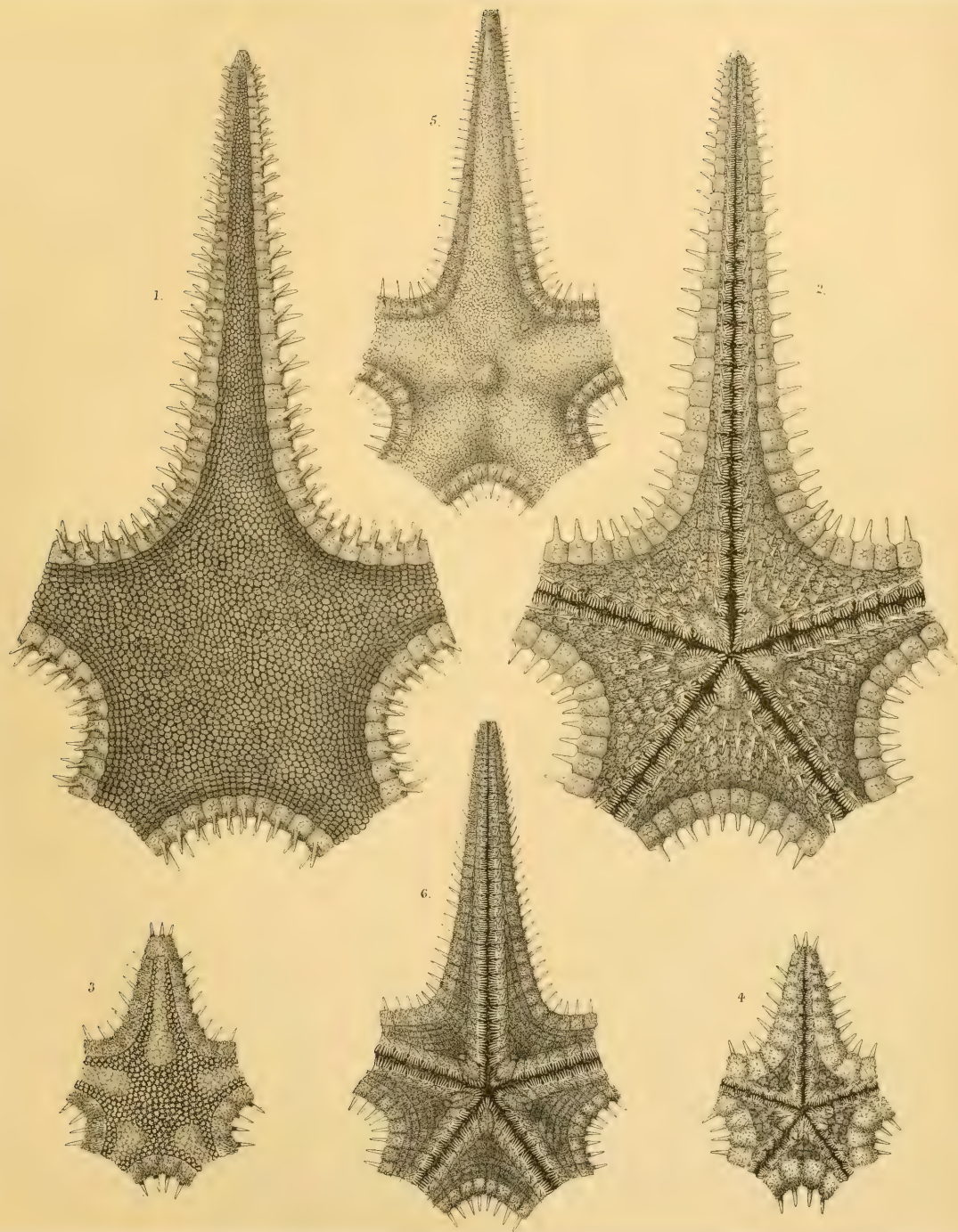
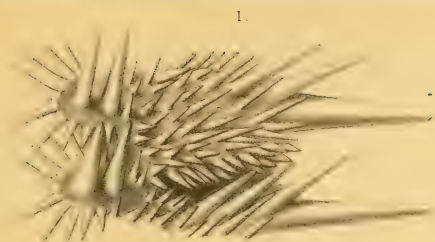


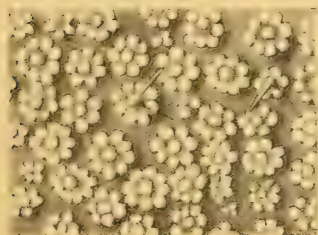
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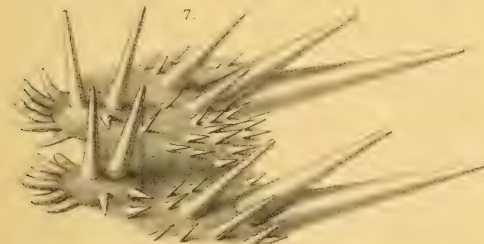
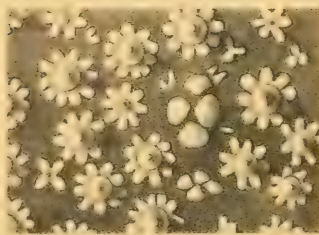
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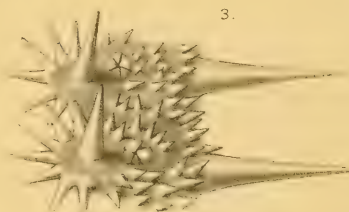
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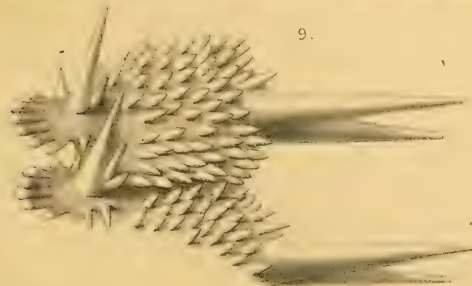
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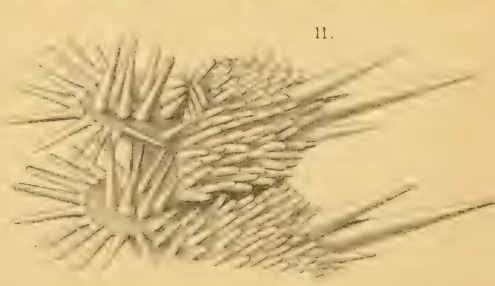
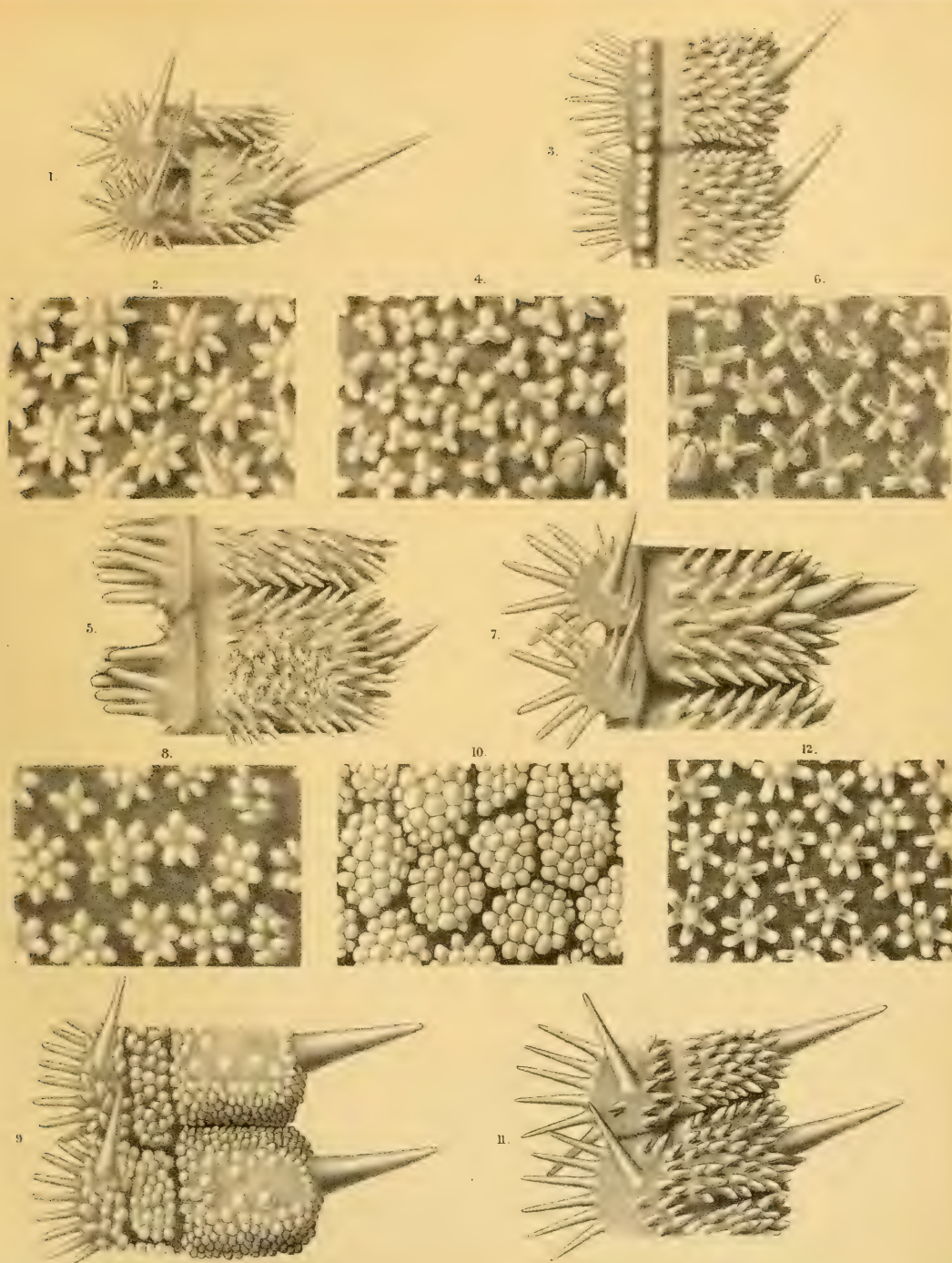


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[For macroscopic figures of this species see Pl. X. figs. 3, 4.]	
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[For macroscopic figures of this species see Pl. XI. figs. 5, 6.]	



Miner Bros. imp.

1-2. *PONTASTER PLANETA*, n.sp.

3-4. *DYTASTER BISERIALIS*, n.sp.

5-6. *DYTASTER INERMIS*, n.sp.

7-8. *PONTASTER SUBTUBERCULATUS*, n.sp.

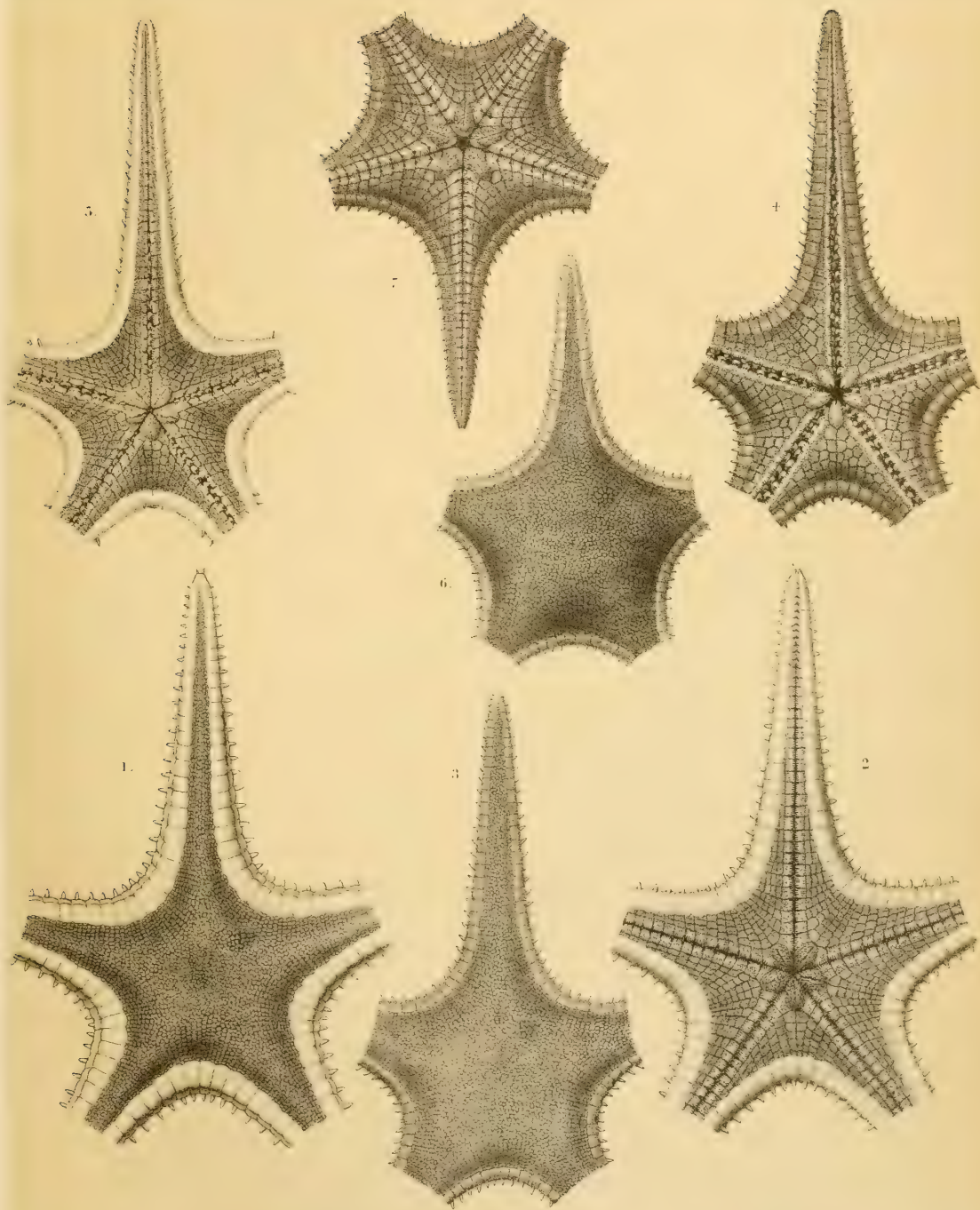
9-10. *PLUTONASTER BIFRONS*, Wyville Thomson, sp.

11-12. *PLUTONASTER AMBIGUUS*, n.sp.

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PLATE XIV.

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Fig. 6. Abactinal aspect ; magnified 2 diameters.	
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[For magnified details of this species see Pl. XV. figs. 5, 6.]	



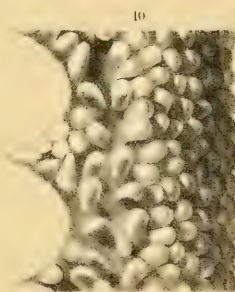
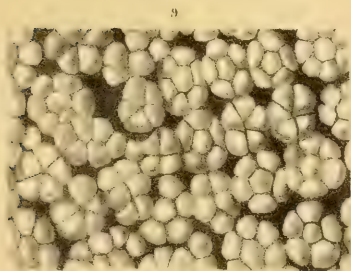
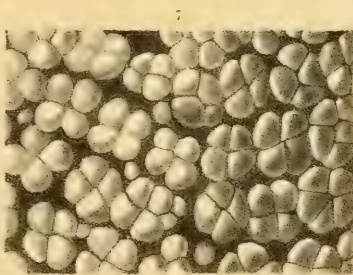
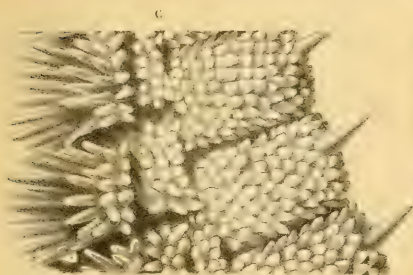
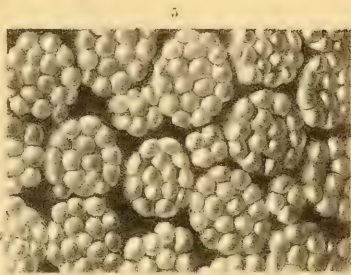
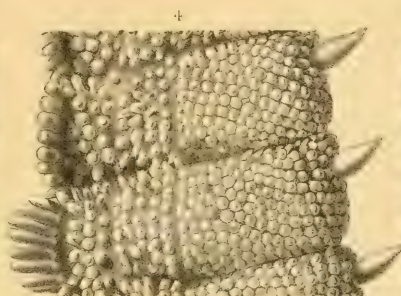
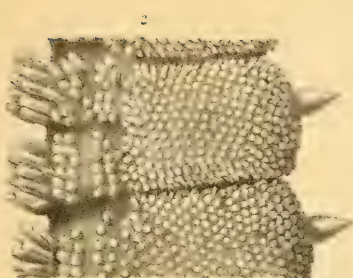
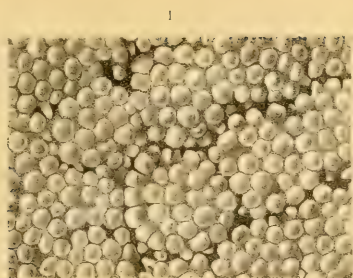
1-2. *PLUTONASTER MARGINATUS*, n.sp.
5. *PLUTONASTER RIGIDUS*, var. *SEMIARMATA* nov.

3-4. *PLUTONASTER RIGIDUS*, n.sp.
6-7. *PLUTONASTER NOTATUS*, n.sp.

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[For macroscopic figures of this species see Pl. XL. figs. 3-6.]	



1-2. PLUTONASTER MARGINATUS, n. sp.
5-6. PLUTONASTER NOTATUS, n. sp.

3-4. PLUTONASTER RIGIDUS, n. sp.
7-11. PHOXASTER PUMILUS, n. sp.

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Fig. 3. Profile view ; magnified 2 diameters.

Fig. 4. A portion of the abactinal surface ; magnified 20 diameters.

Fig. 5. Adambulacral and infero-marginal plates ; magnified 10 diameters.

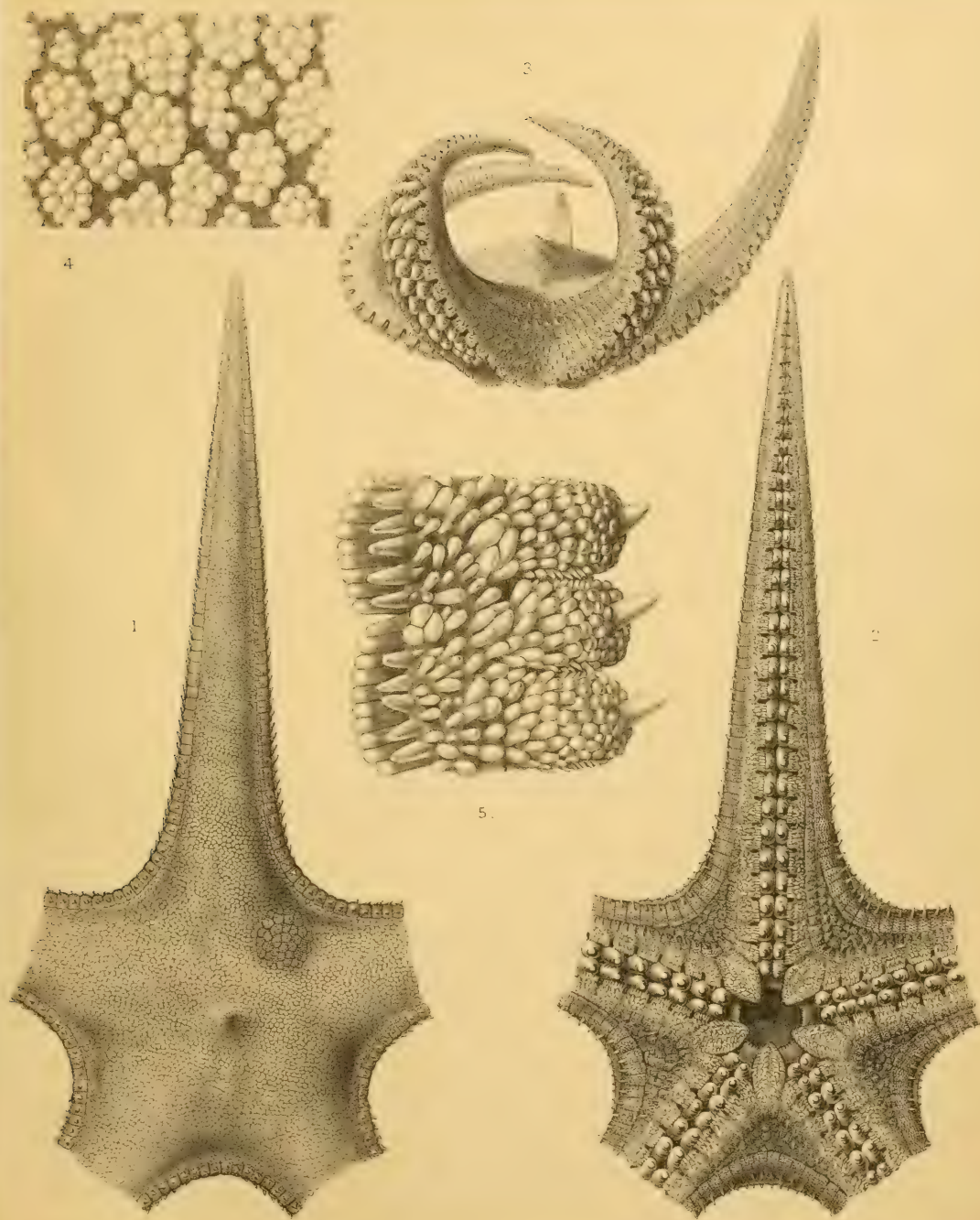
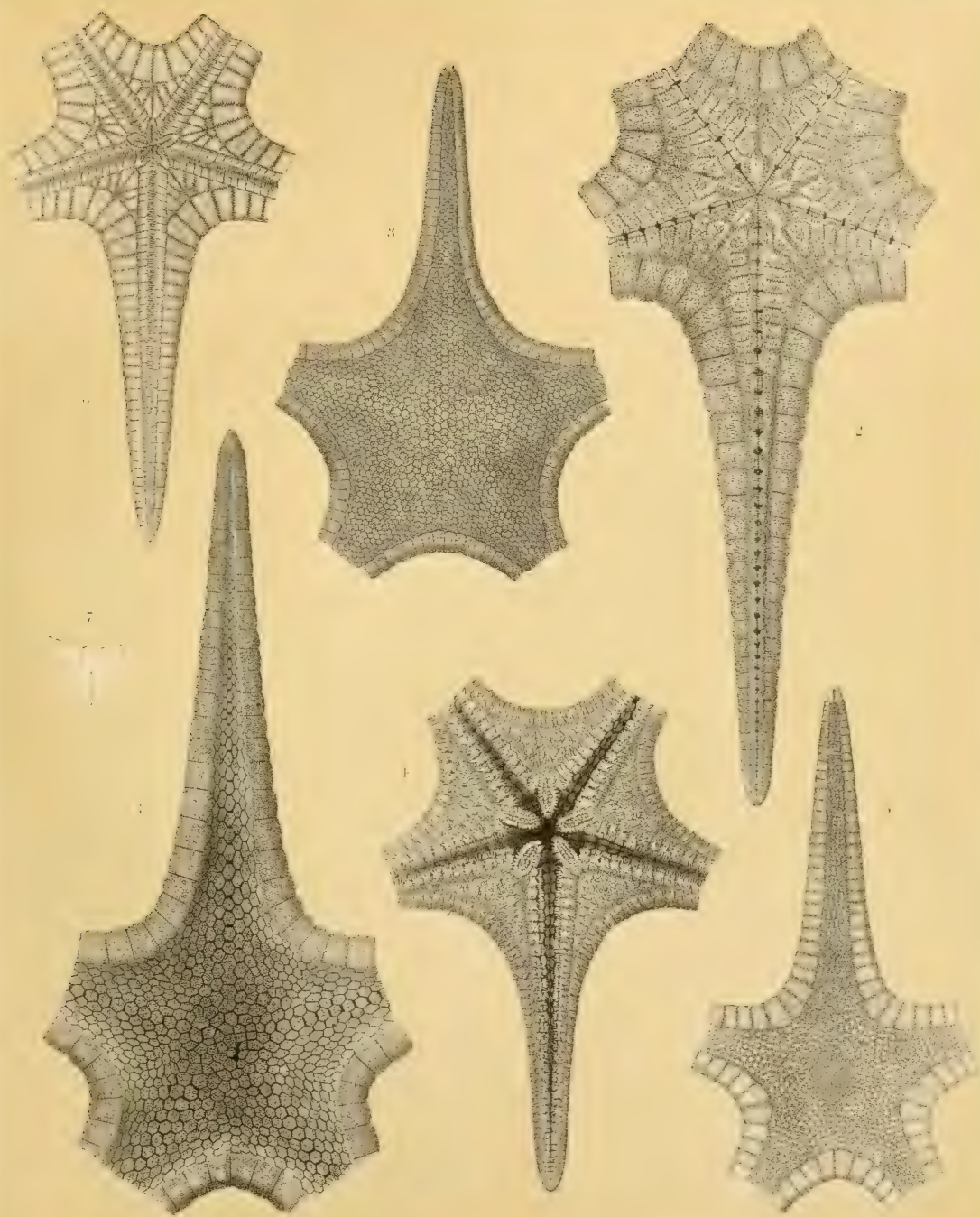


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[For magnified details of this species see Pl. XVIII. figs. 1-4.]	



1-2. *APHRODITASTER GRACILIS*, n. sp.

3-4. *PSEUDARCHASTER TESSELLATUS*, n. sp.

5-7. *CRASPIDASTER HESPERUS*, Müller & Troschel, sp.

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Fig. 10. Adambulacral and infero-marginal plates ; magnified 12 diameters.	
[For macroscopic figures of this species see Pl. XVII. figs. 3, 4.]	

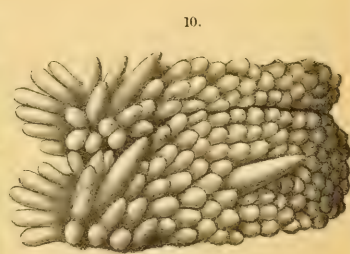
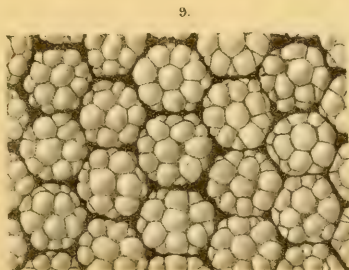
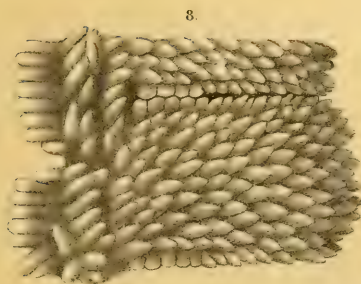
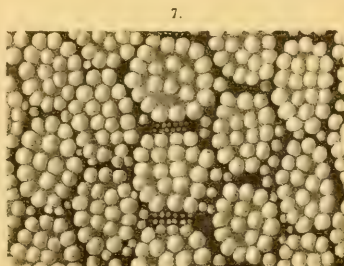
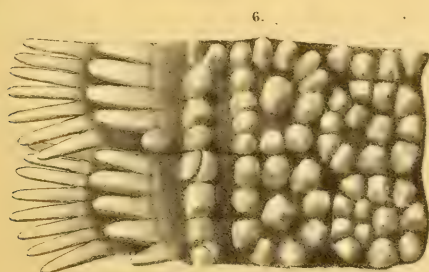
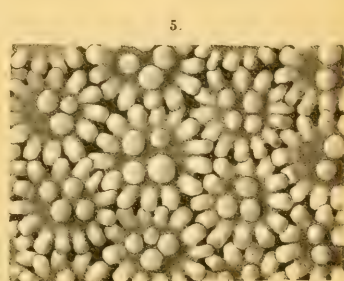
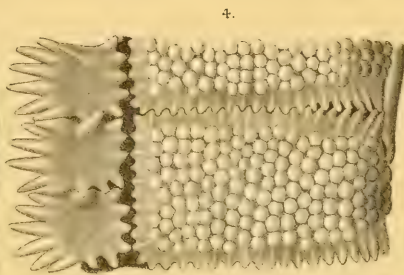
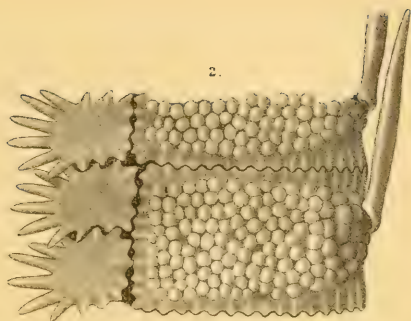
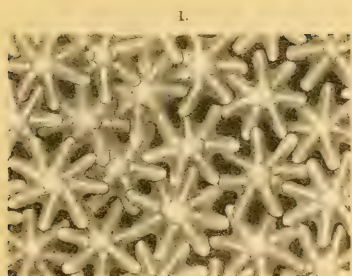
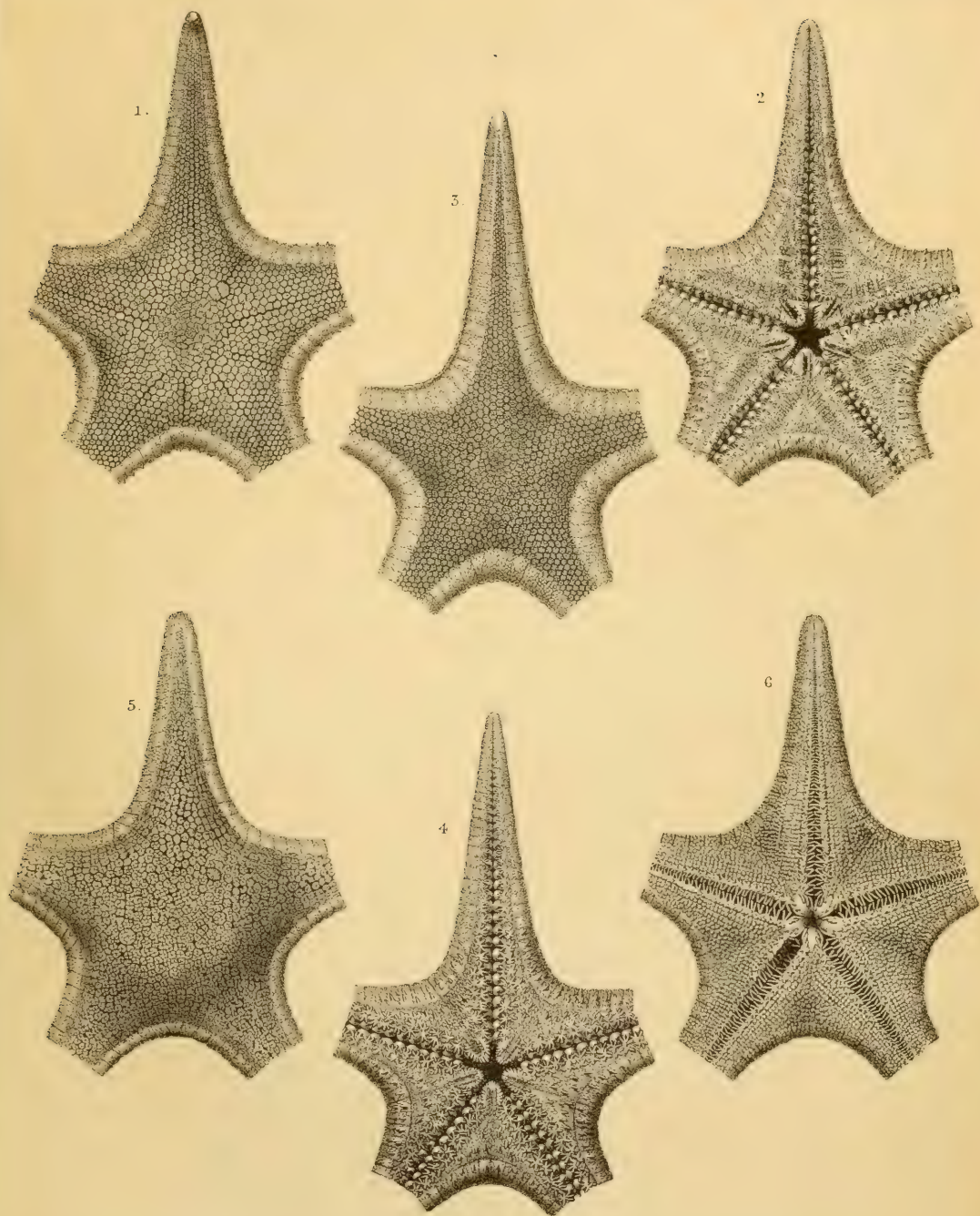


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Fig. 1. Abactinal aspect ; magnified 2 diameters.	
Fig. 2. Actinal aspect ; magnified 2 diameters.	
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Fig. 3. Abactinal aspect ; magnified 2 diameters.	
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Fig. 6. Actinal aspect of a young example ; magnified 3 diameters.	
[For figures of adult examples of this species see Pl. XLVIII. figs. 1-4 ; for magnified details see Pl. XLIX. figs. 5-10.]	



1-2. PSEUDARCHASTER DISCUS, n.sp.

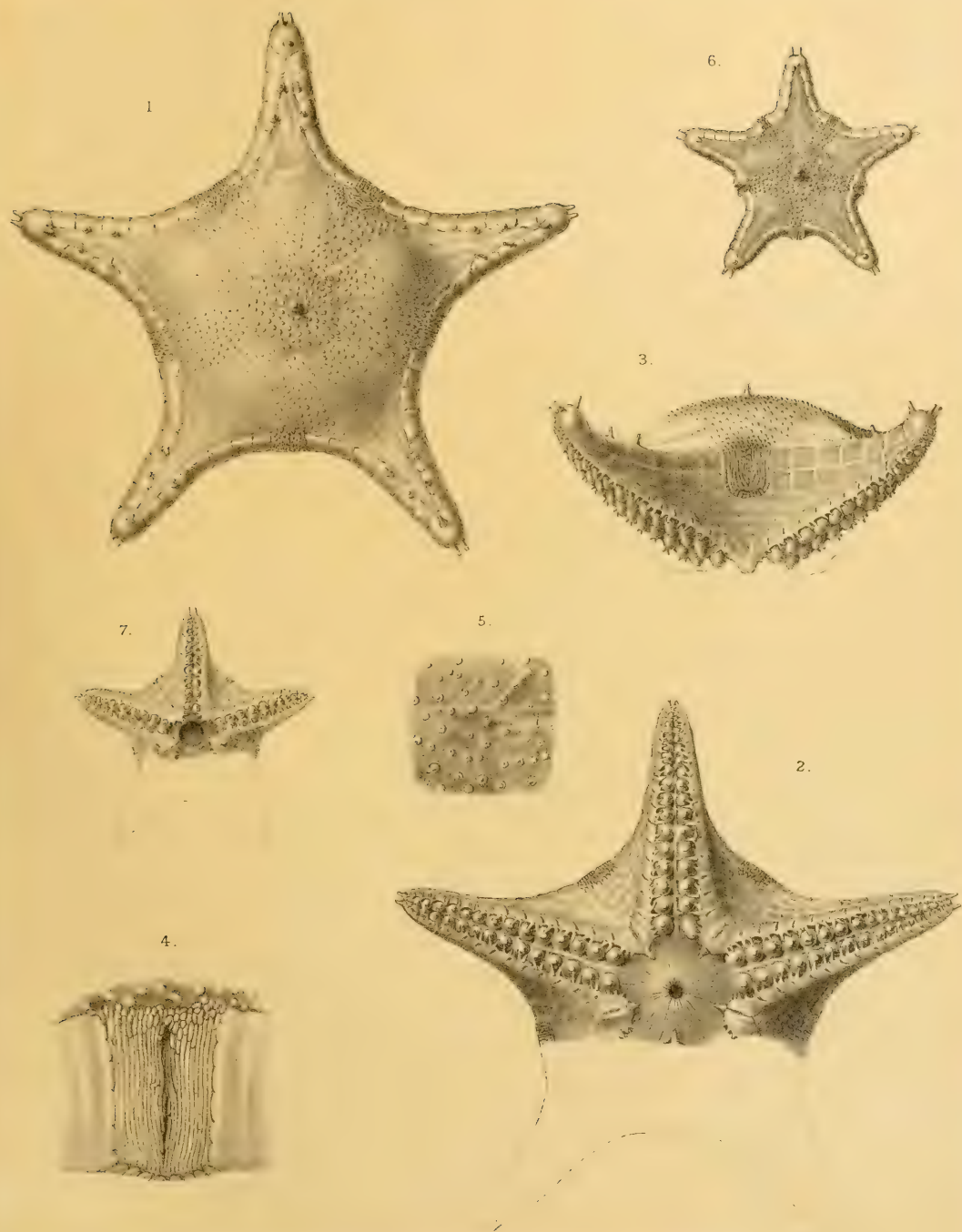
3-4. PSEUDARCHASTER INTERMEDIUS, n.sp.

5-6. GNATHASTER ELONGATUS, n.sp. juv.

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Fig. 7. Actinal aspect of a young example ; magnified 3 diameters.	



PORCELLANASTER CÆRULEUS, Wyville Thomson

PLATE XX^A.

PLATE XX^A.

Figs. 1-10. PORCELLANASTER CÆRULEUS, Wyville Thomson, . . . Page
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Fig. 1. Abactinal aspect; magnified 3 diameters.

Fig. 2. Actinal aspect; magnified 3 diameters.

Fig. 3. Profile view; magnified 3 diameters.

Fig. 4. A portion of the actinostome, showing the buccal membrane, and an adjacent radial area; magnified 5 diameters.

Fig. 5. An actinal interradiar area; magnified 6 diameters.

Fig. 6. A terminal plate, abactinal aspect; magnified about 7 diameters.

Fig. 7. Actinal aspect of the same; magnified about 7 diameters.

Fig. 8. A pair of ambulacral plates, seen in profile; magnified 5 diameters.

Fig. 9. Ambulacral plates seen from above; magnified 5 diameters.

Fig. 10. Lateral view of the same, showing the adambulacral plates; magnified 5 diameters. [The character of the latter is somewhat exaggerated.]

[These figures appear to have been drawn from a dried or shrunken example.

The plate was prepared under the direction of Sir Wyville Thomson, and I was unfortunately not aware of its existence until the greater part of the text and nearly all the plates had been printed off.]

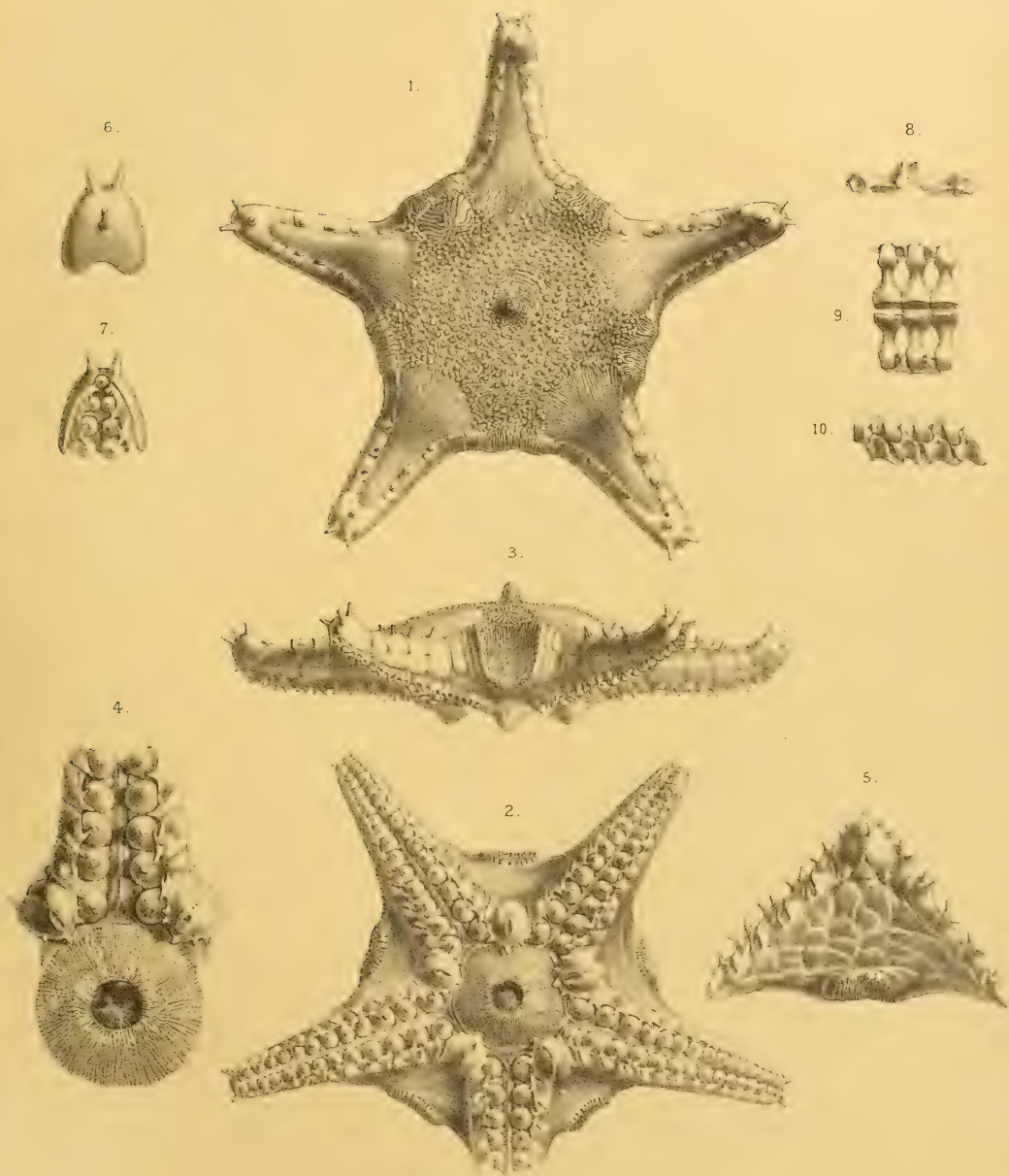


PLATE XXI.

PLATE XXI.

Figs. 1-4. <i>HYPHALASTER DIADEMATUS</i> , n. sp.	Page 159
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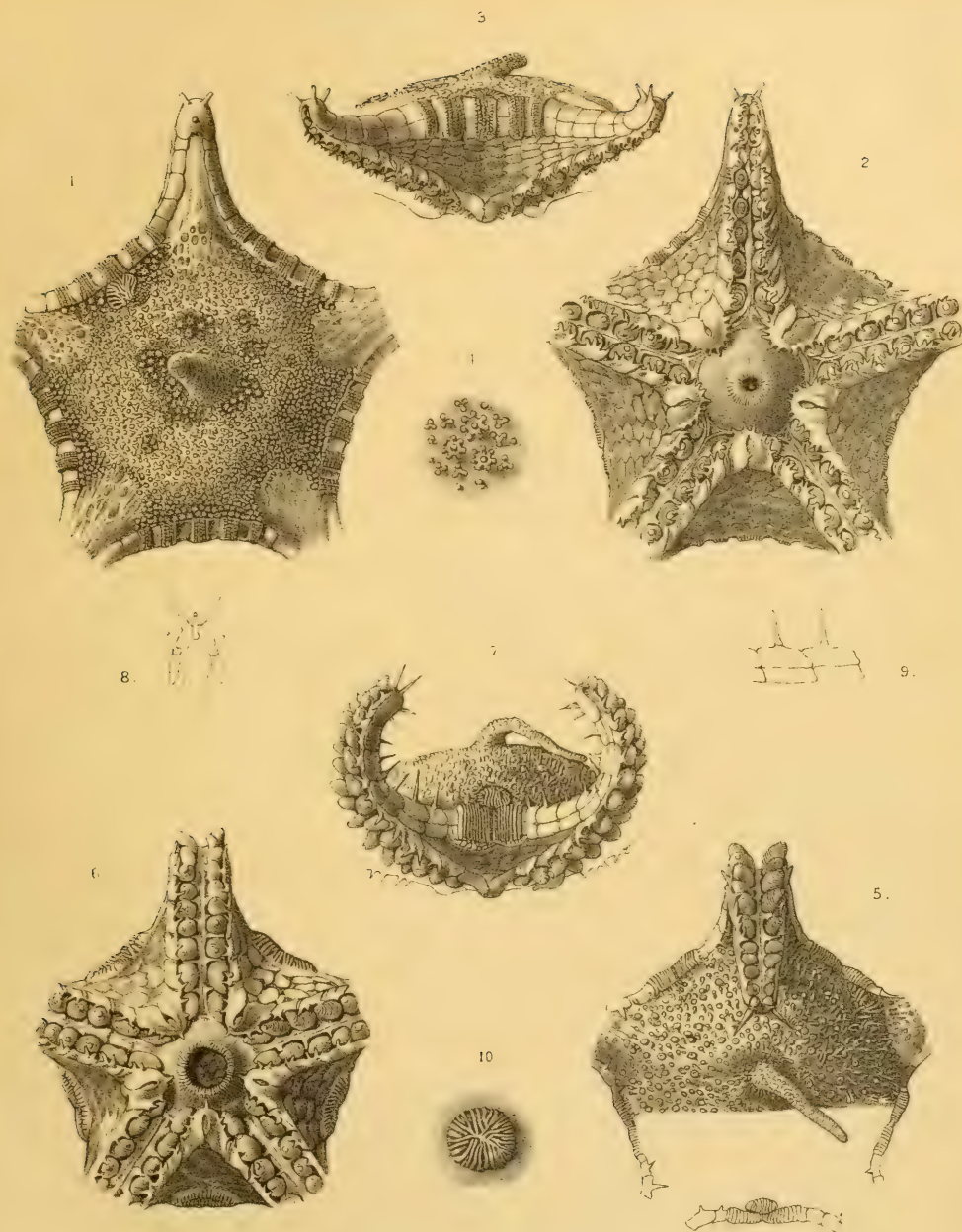
- Fig. 1. Abactinal aspect ; magnified 4 diameters.
- Fig. 2. Actinal aspect ; magnified 4 diameters.
- Fig. 3. Profile view ; magnified 4 diameters.
- Fig. 4. A portion of the abactinal surface ; magnified about 14 diameters.

[For magnified details of this species see Pl. XXVIII. figs. 17-20.]

Figs. 5-10. <i>PORCELLANASTER CAULIFER</i> , n. sp.	138
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- Fig. 5. Abactinal aspect ; magnified 4 diameters.
- Fig. 6. Actinal aspect ; magnified 4 diameters.
- Fig. 7. Profile view ; magnified 4 diameters.
- Fig. 8. Diagram of the terminal plate ; magnified.
- Fig. 9. Diagram of the marginal plates ; magnified.
- Fig. 10. The madreporiform body ; magnified 8 diameters.

[For magnified details of this species see Pl. XXVII. figs. 9-12.]



F. Hubb. Intef. Edin'

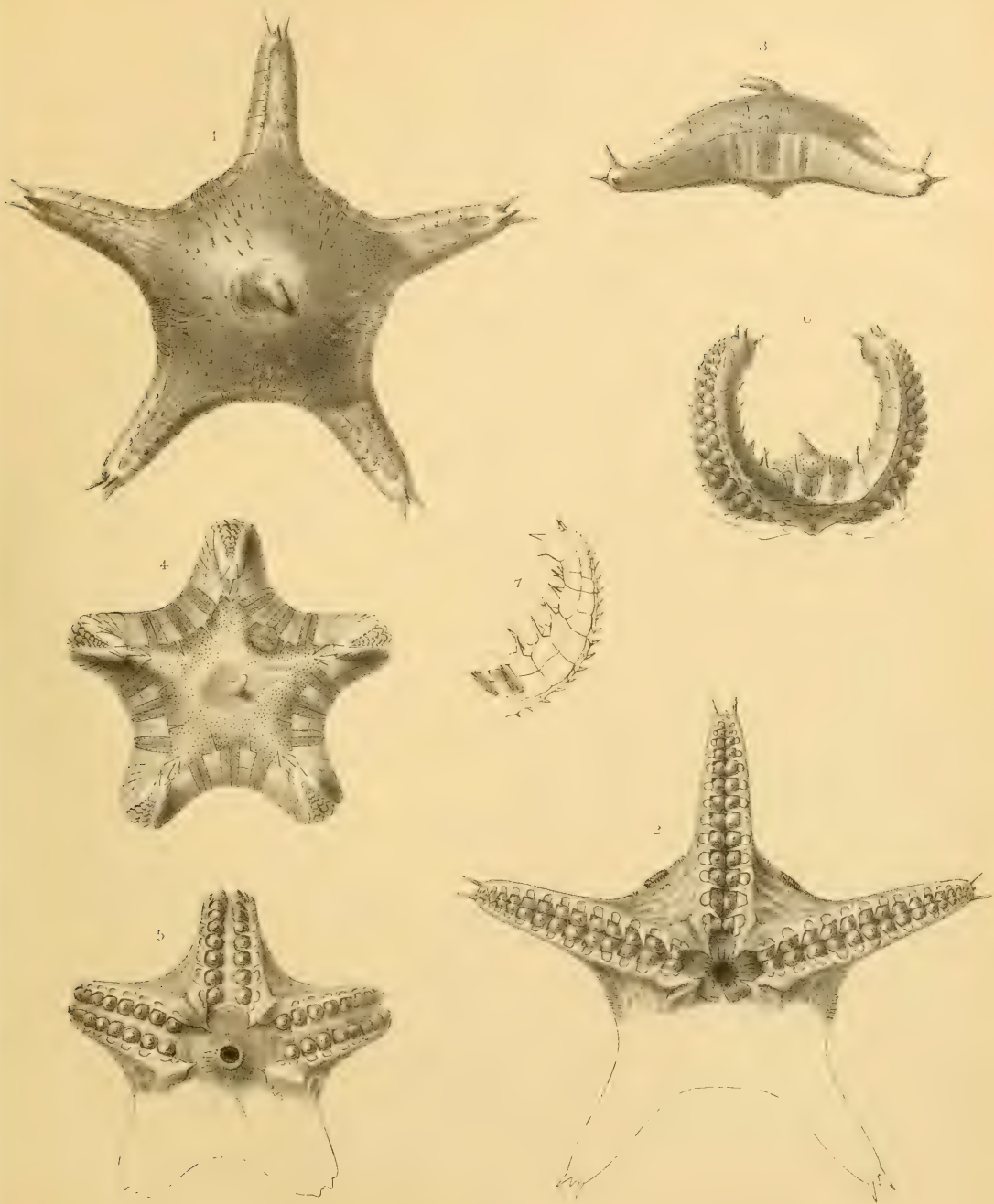
1-4. *HYPHALASTER DIADEMATUS*, n. sp.

5-10. *PORCELLANASTER CAULIFER*, n. sp.

PLATE XXII.

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Fig. 2. Actinal aspect ; magnified 5 diameters.	
Fig. 3. Profile view ; magnified 5 diameters.	
[For magnified details of this species see Pl. XXVII. figs. 5-8.]	
Figs. 4-7. PORCELLANASTER CRASSUS, n. sp.	141
Fig. 4. Abactinal aspect ; magnified 2 diameters.	
Fig. 5. Actinal aspect ; magnified 2 diameters.	
Fig. 6. Profile view ; magnified 2 diameters.	
Fig. 7. Direct lateral view of a ray, in outline ; magnified 2 diameters.	
[For magnified details of this species see Pl. XXVII. figs. 1-4.]	



F. H. Michael, del.

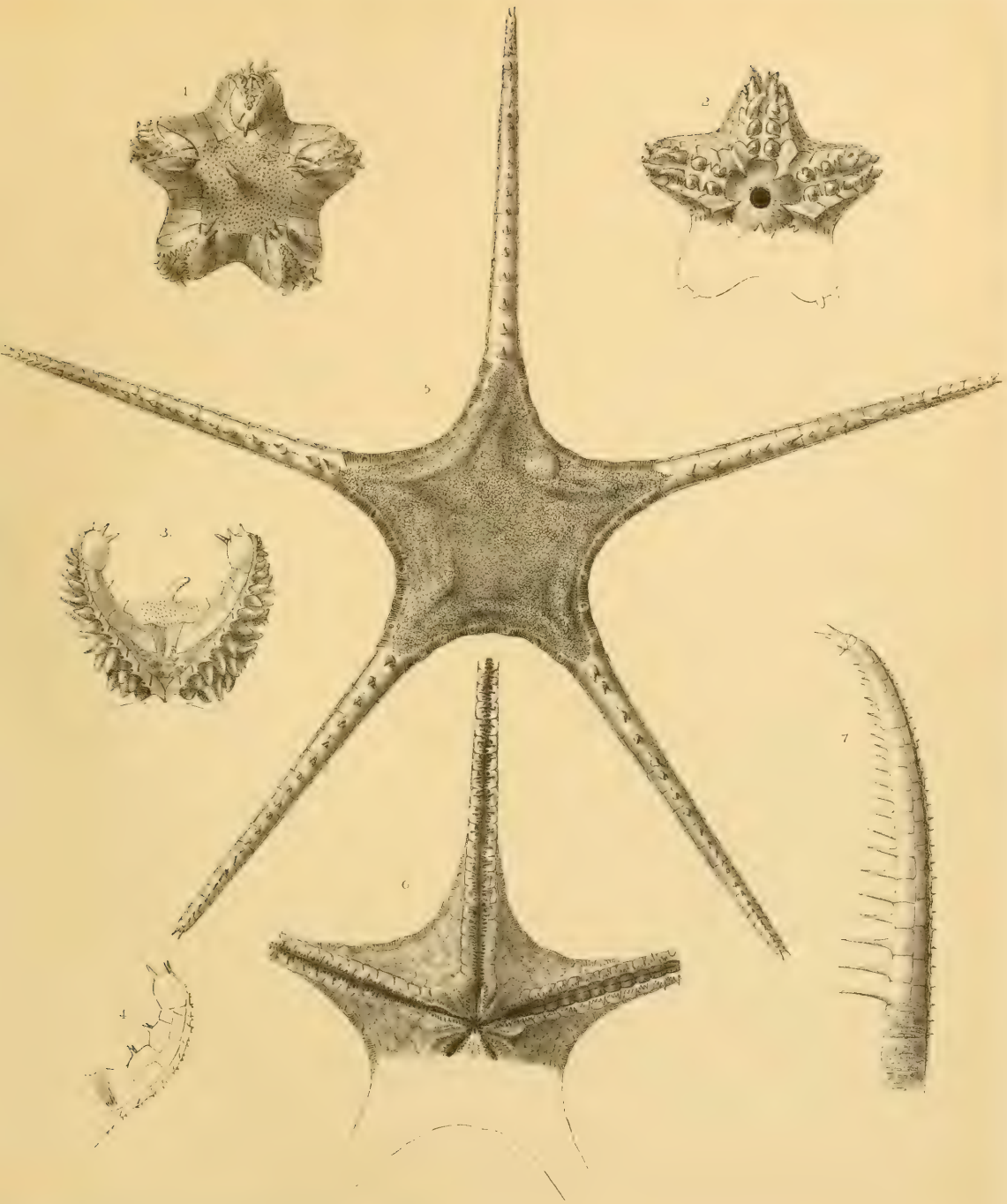
Geo. West & Sons lith et imp

1-3. PORCELLANASTER GRACILIS, n. sp. 4-7. PORCELLANASTER CRASSUS, n. sp.

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PLATE XXIII.

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Fig. 4. Direct lateral view of a ray, in outline; magnified 3 diameters.	
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Fig. 6. Actinal aspect; magnified $1\frac{1}{2}$ diameters.	
Fig. 7. Direct lateral view of a ray; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XXVII. figs. 17-20.]	



H. Michael, del.

Geo West & Sons Lith et imp.

1-4. PORCELLANASTER TUBEROSUS, n. sp 5-7. STYRACASTER HORRIDUS, n. sp

PLATE XXIV.

PLATE XXIV.

Figs. 1-4. STYRACASTER ARMATUS, n. sp.	Page 153
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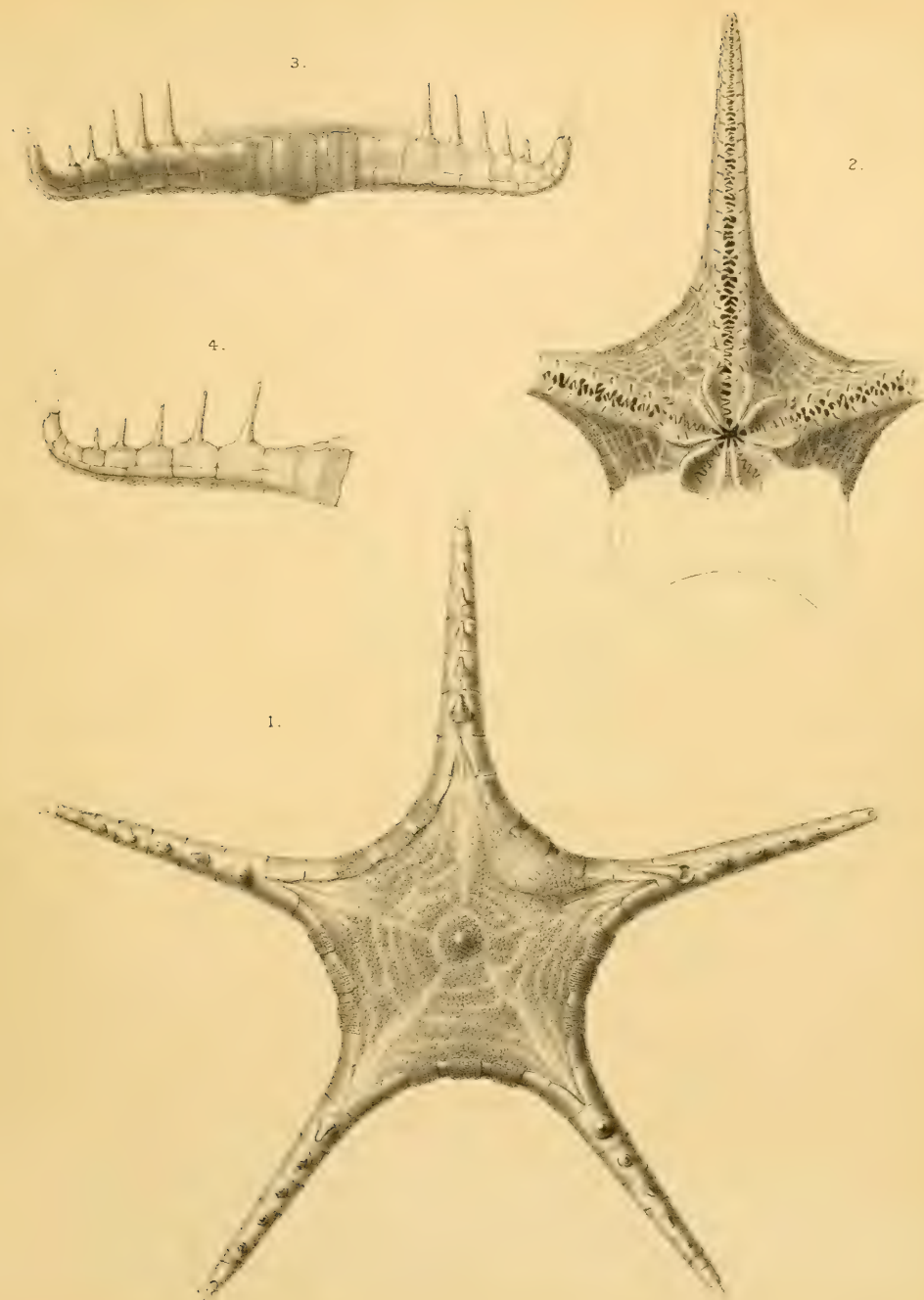
Fig. 1. Abactinal aspect; magnified 2 diameters.

Fig. 2. Actinal aspect; magnified 2 diameters.

Fig. 3. Profile view; magnified 2 diameters.

Fig. 4. Lateral view of a ray; magnified 2 diameters.

[For magnified details of this species see Pl. XXVIII. figs. 1-4.]



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STYRACASTER ARMATUS, n. sp.

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Fig. 1. Abactinal aspect; magnified 2 diameters.

Fig. 2. Actinal aspect; magnified 2 diameters.

Fig. 3. Profile view; magnified 2 diameters.

[For magnified details of this species see Pl. XXVIII, figs 9-12.]

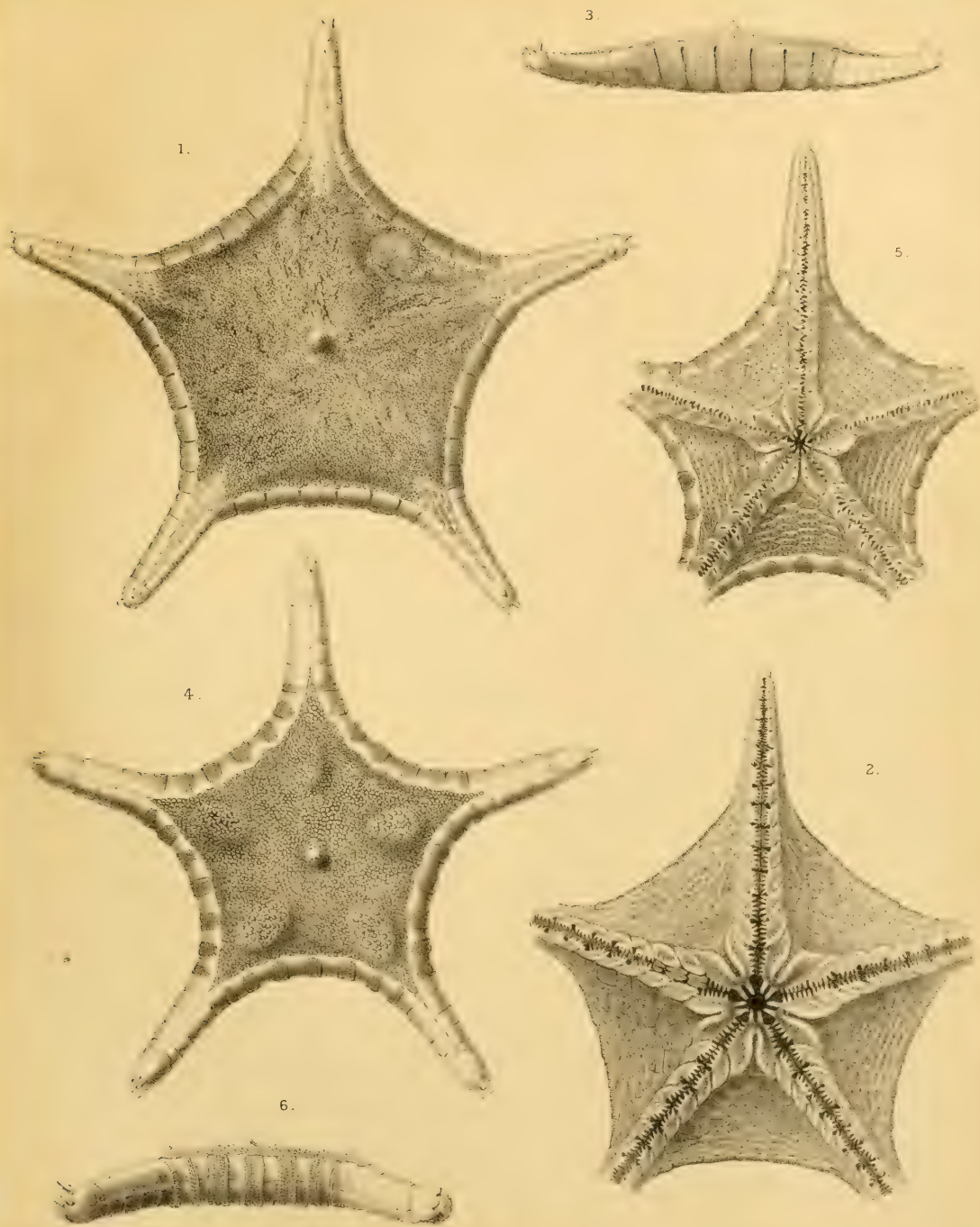
Figs. 4-6. <i>HYPHALASTER INERMIS</i> , n. sp.	162
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Fig. 4. Abactinal aspect; magnified 3 diameters.

Fig. 5. Actinal aspect; magnified 3 diameters.

Fig. 6. Profile view; magnified 3 diameters.

[For magnified details of this species see Pl. XXVIII, figs. 5-8.]



1-3. HYPHALASTER PLANUS, n. sp.

4-6. HYPHALASTER INERMIS, n. sp.

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Fig. 5. Actinal aspect of a young example ; magnified 4 diameters.	
Fig. 6. An embryonic abactinal plate ; magnified 54 diameters.	

[For magnified details of this species see Pl. XXVIII. figs. 13-16.]

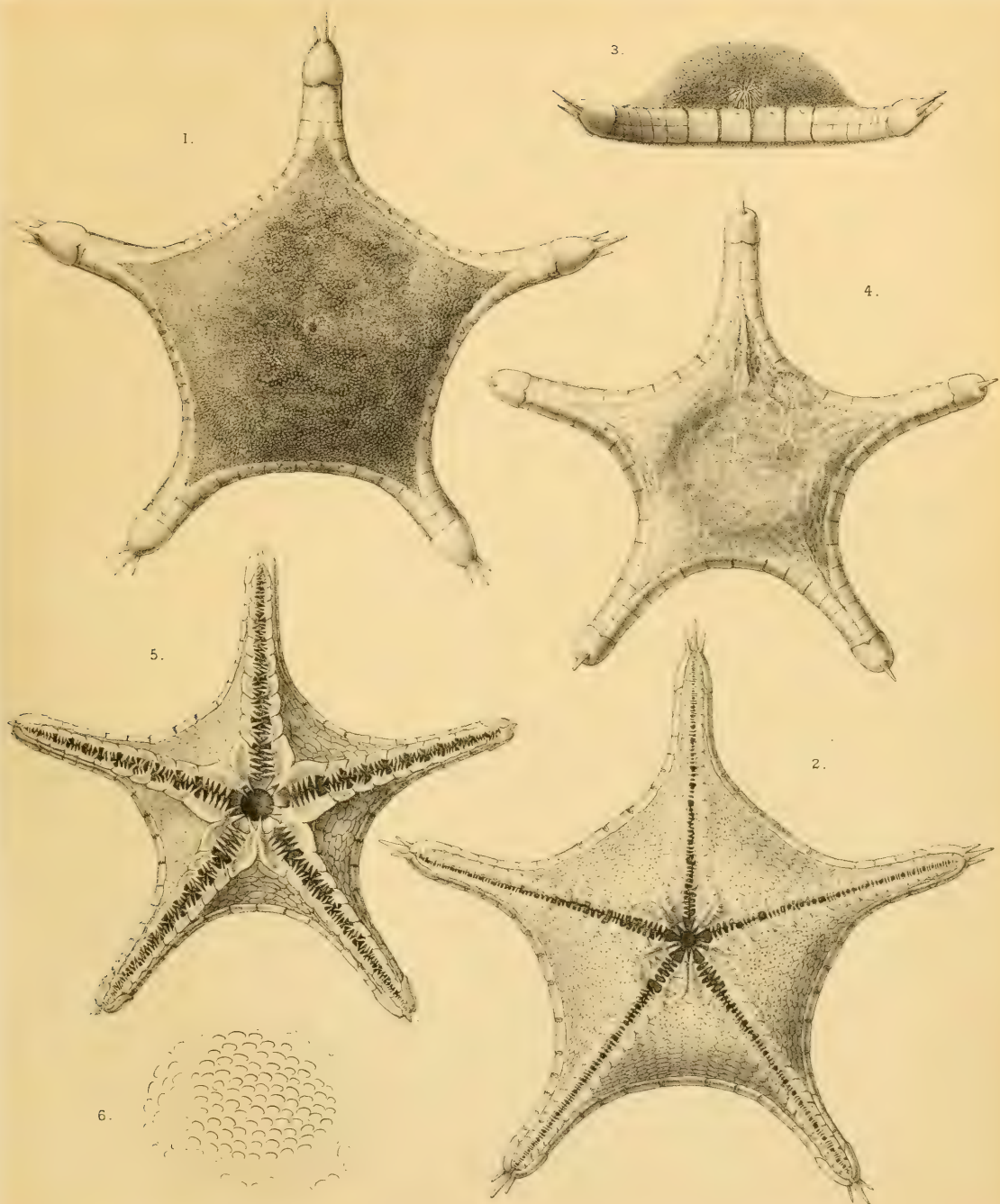


PLATE XXVII.

PLATE XXVII.

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Fig. 1. A portion of the abactinal surface ; magnified 20 diameters.	
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Fig. 4. A cribriform organ ; magnified 6 diameters.	
[For macroscopic figures of this species see Pl. XXII. figs. 4-7.]	
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Fig. 5. A portion of the abactinal surface ; magnified 15 diameters.	
Fig. 6. Mouth-plates ; magnified 10 diameters.	
Fig. 7. Adambulacral plates, with segmental pits and papillæ ; magnified 18 diameters.	
Fig. 8. A cribriform organ ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. XXII. figs. 1-3.]	
Figs. 9-12. PORCELLANASTER CAULIFER, n. sp.	138
Fig. 9. A portion of the abactinal surface ; magnified 20 diameters.	
Fig. 10. Mouth-plates ; magnified 10 diameters.	
Fig. 11. Adambulacral plates ; magnified 15 diameters.	
Fig. 12. A cribriform organ ; magnified 12 diameters.	
[For macroscopic figures of this species see Pl. XXI. figs. 5-10.]	
Figs. 13-16. PORCELLANASTER TUBEROSUS, n. sp.	140
Fig. 13. A portion of the abactinal surface ; magnified 20 diameters.	
Fig. 14. Mouth-plates ; magnified 8 diameters.	
Fig. 15. Adambulacral plates ; magnified 16 diameters.	
Fig. 16. A cribriform organ ; magnified 9 diameters.	
[For macroscopic figures of this species see Pl. XXIII. figs. 1-4.]	
Figs. 17-20. STYRACASTER HORRIDUS, n. sp.	150
Fig. 17. A portion of the abactinal surface ; magnified 20 diameters.	
Fig. 18. Mouth-plates ; magnified 4 diameters.	
Fig. 19. Adambulacral plates ; magnified 8 diameters.	
Fig. 20. A cribriform organ ; magnified 5 diameters.	
[For macroscopic figures of this species see Pl. XXIII. figs. 5-7.]	



F. H. Michael del.

F. H. Michael sculp.

1-4. PORCELLANASTER CRASSUS, n.sp.
9-12. PORCELLANASTER CAULIFER, n.sp.

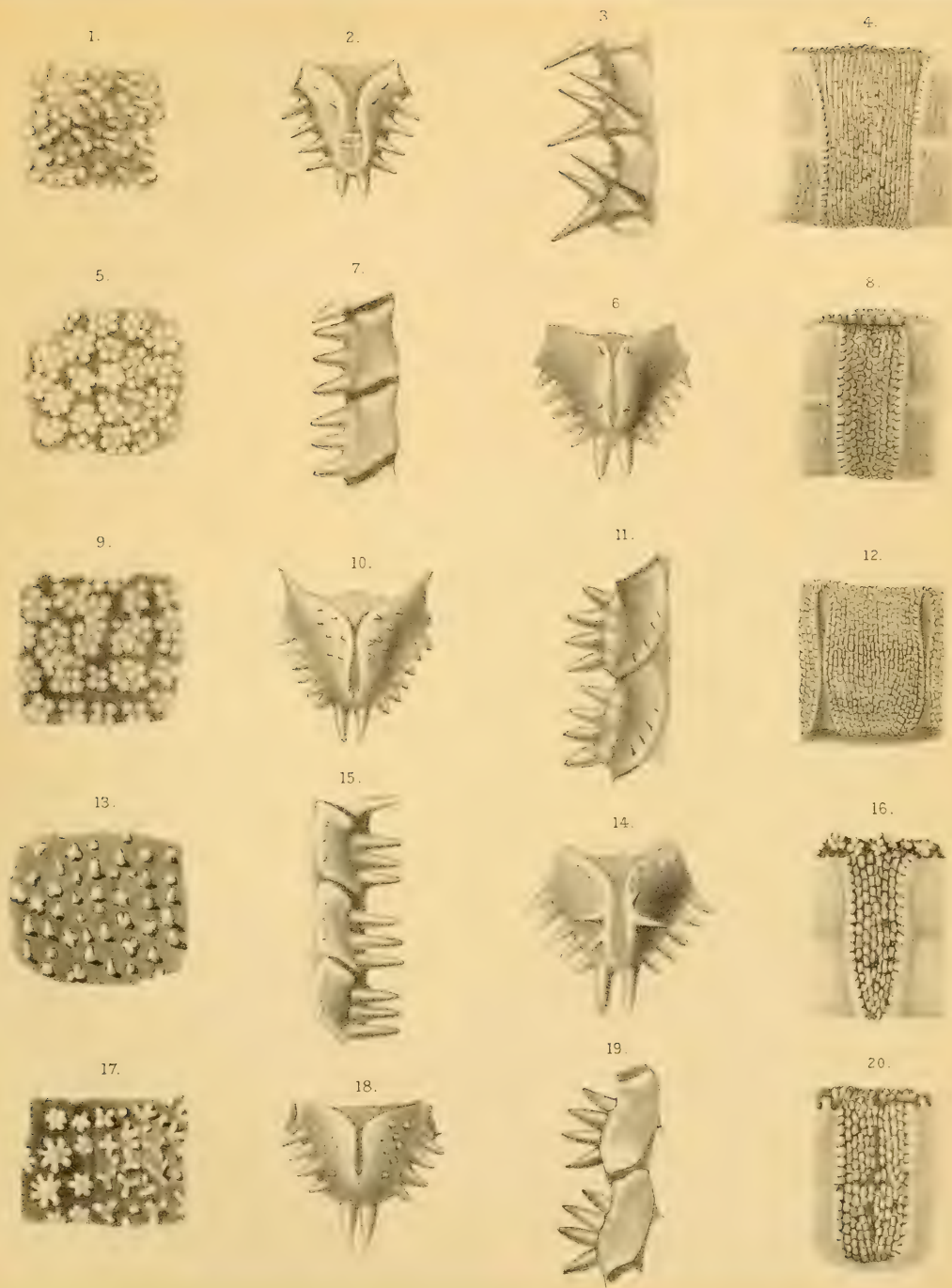
5-8. PORCELLANASTER GRACILIS, n.sp.
13-16. PORCELLANASTER TUBEROSUS, n.sp.

17-20. STYRACASTER HORRIDUS, n.sp.

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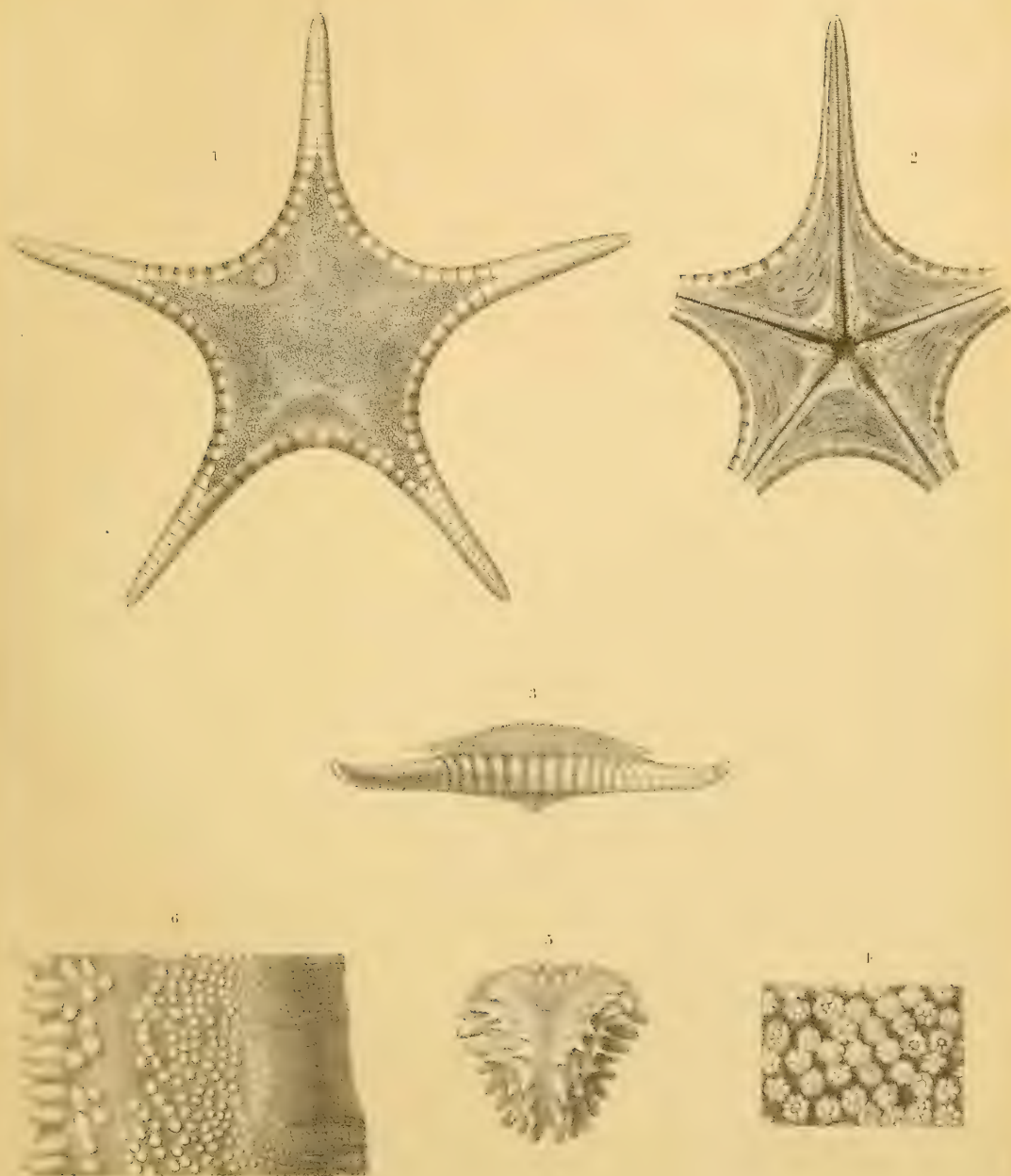


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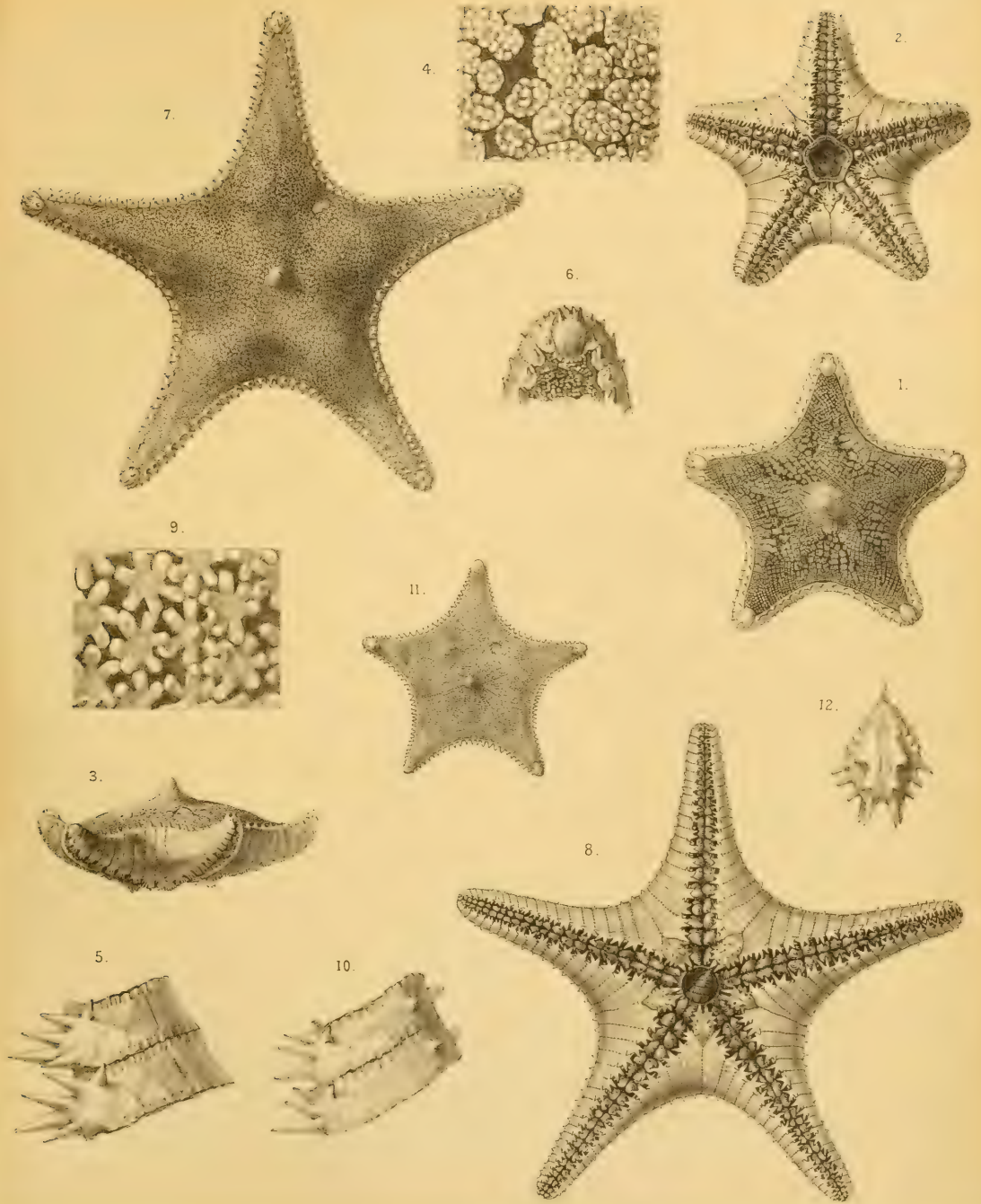
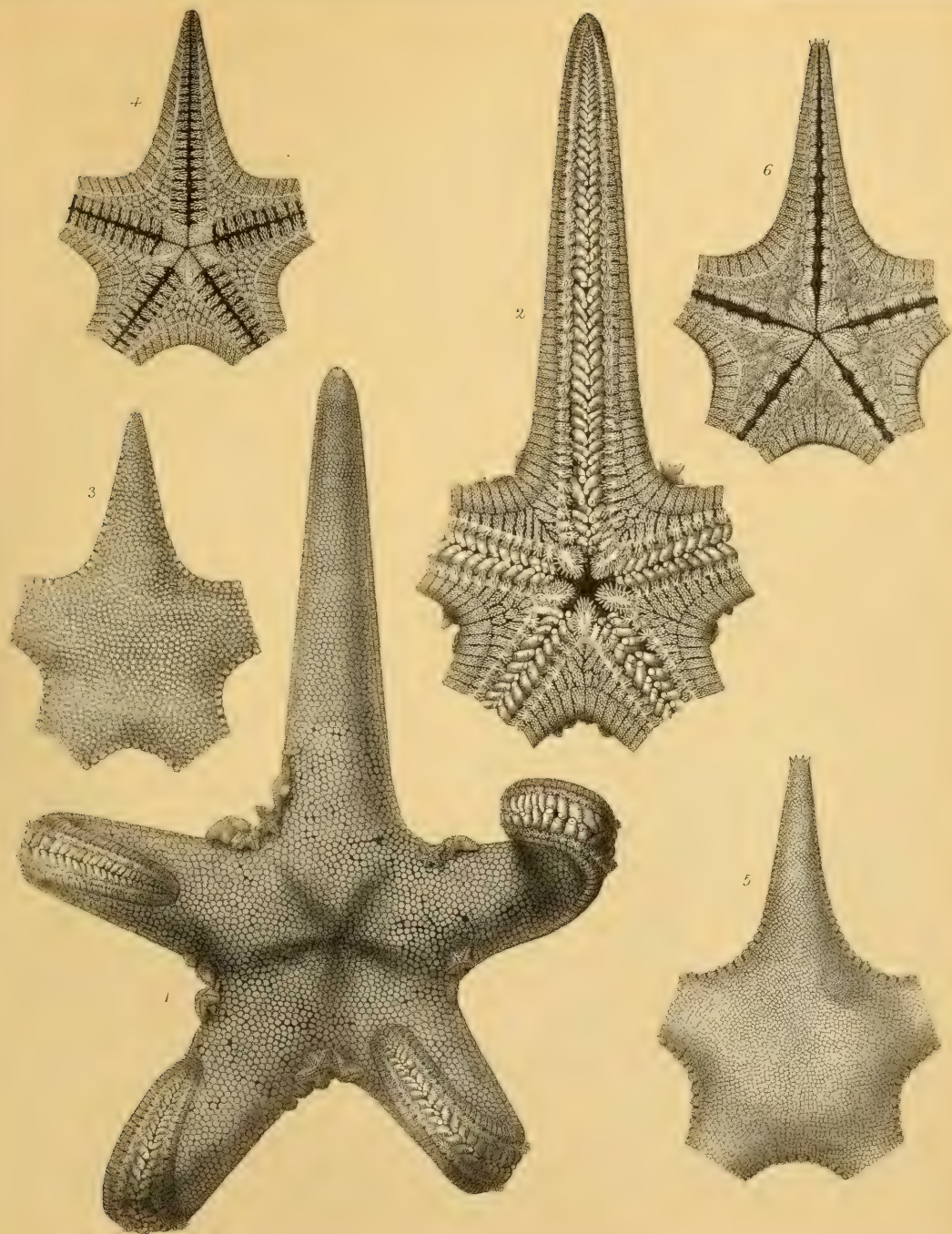


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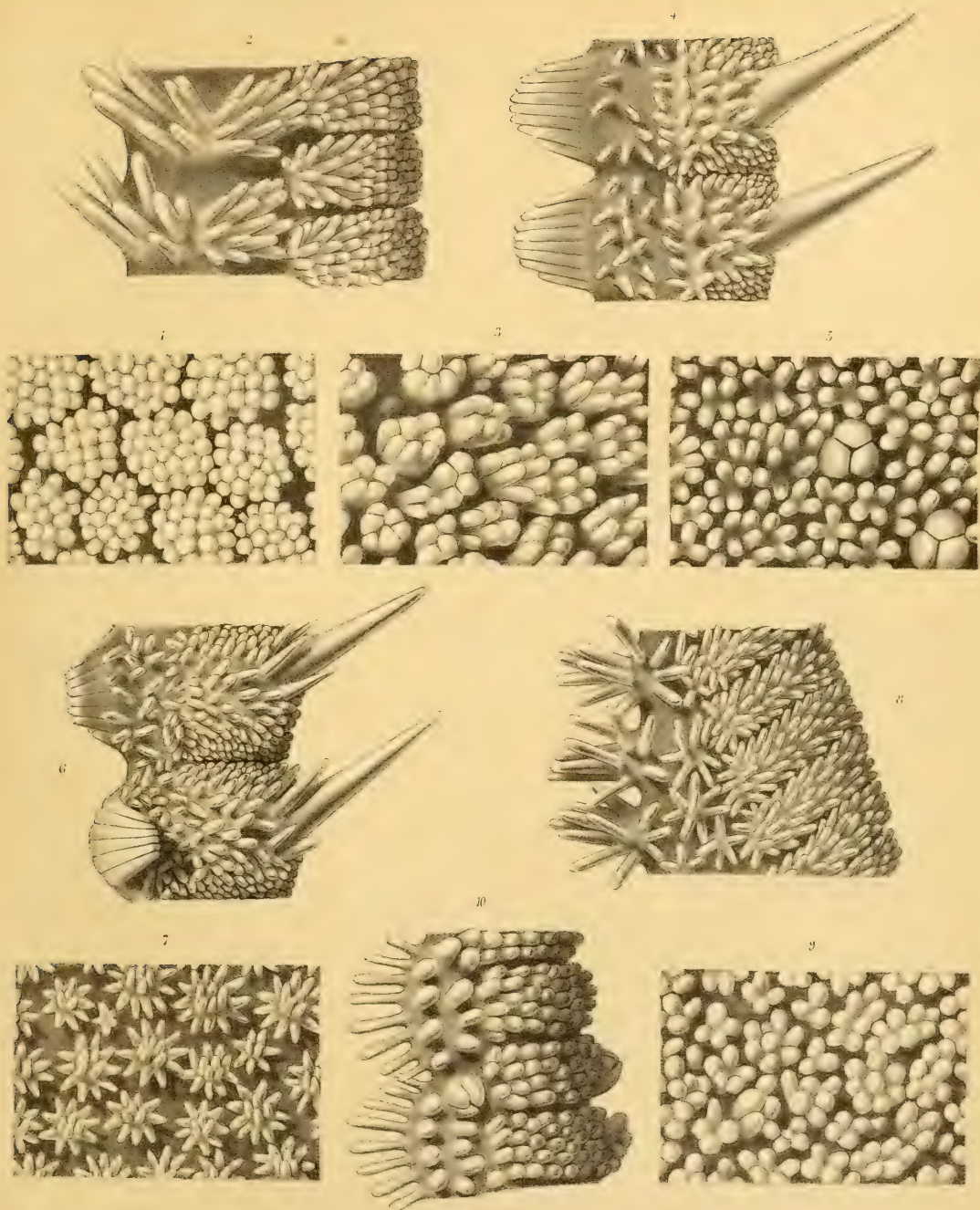
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1-2. *LEPTOPTYCHASTER KERGUELENENSIS* Smith 3-4. *LEPTOPTYCHASTER ANTARCTICUS*, n.sp.
5-6. *LONCHOTASTER FORCIPIFER*, n.sp.

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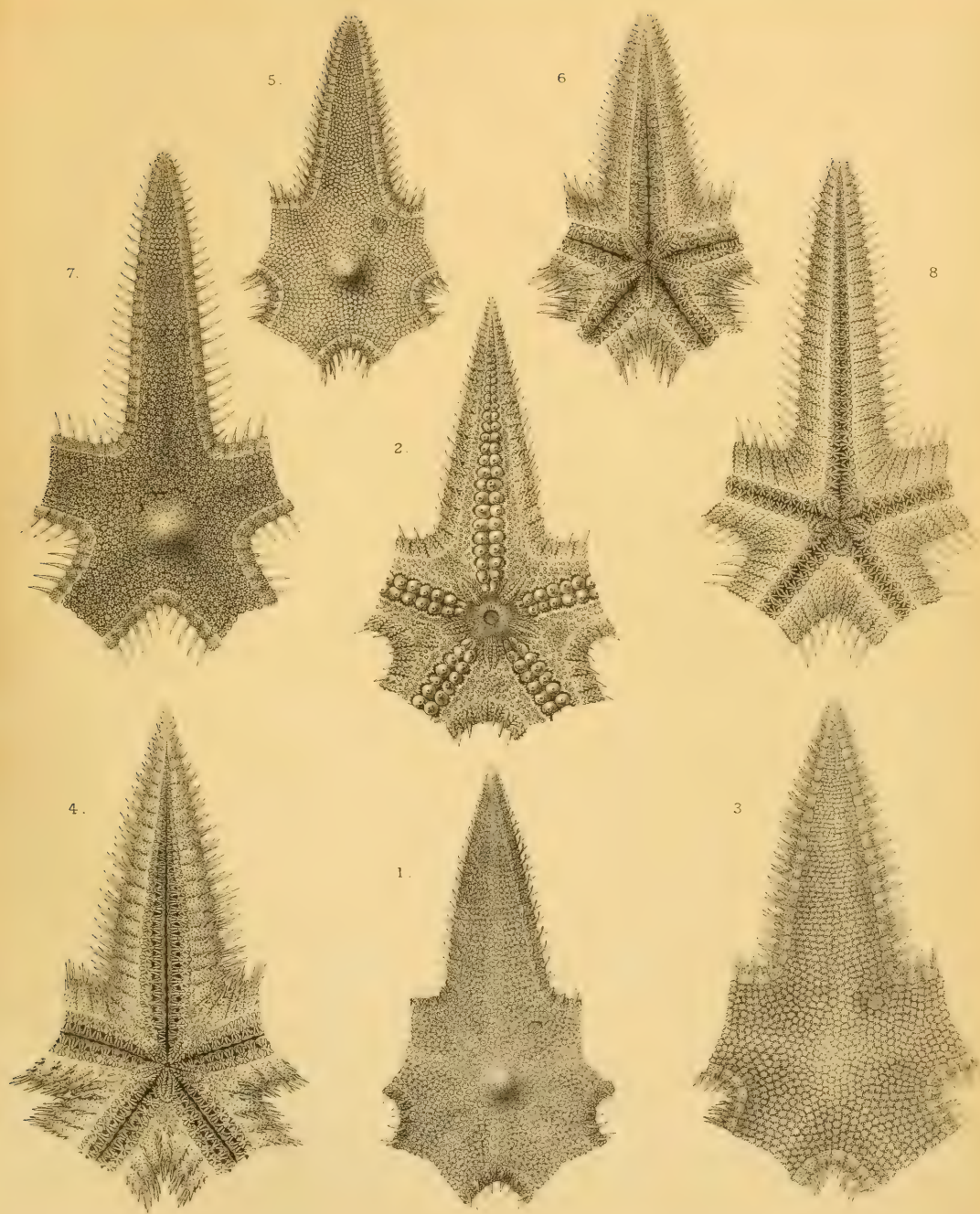


1-2. LEPTOPTYCHASTER KERQUELENENSIS, Smith, n. sp. 3-4. DYTASTER NOBILIS, n. sp.
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H. Michael del.

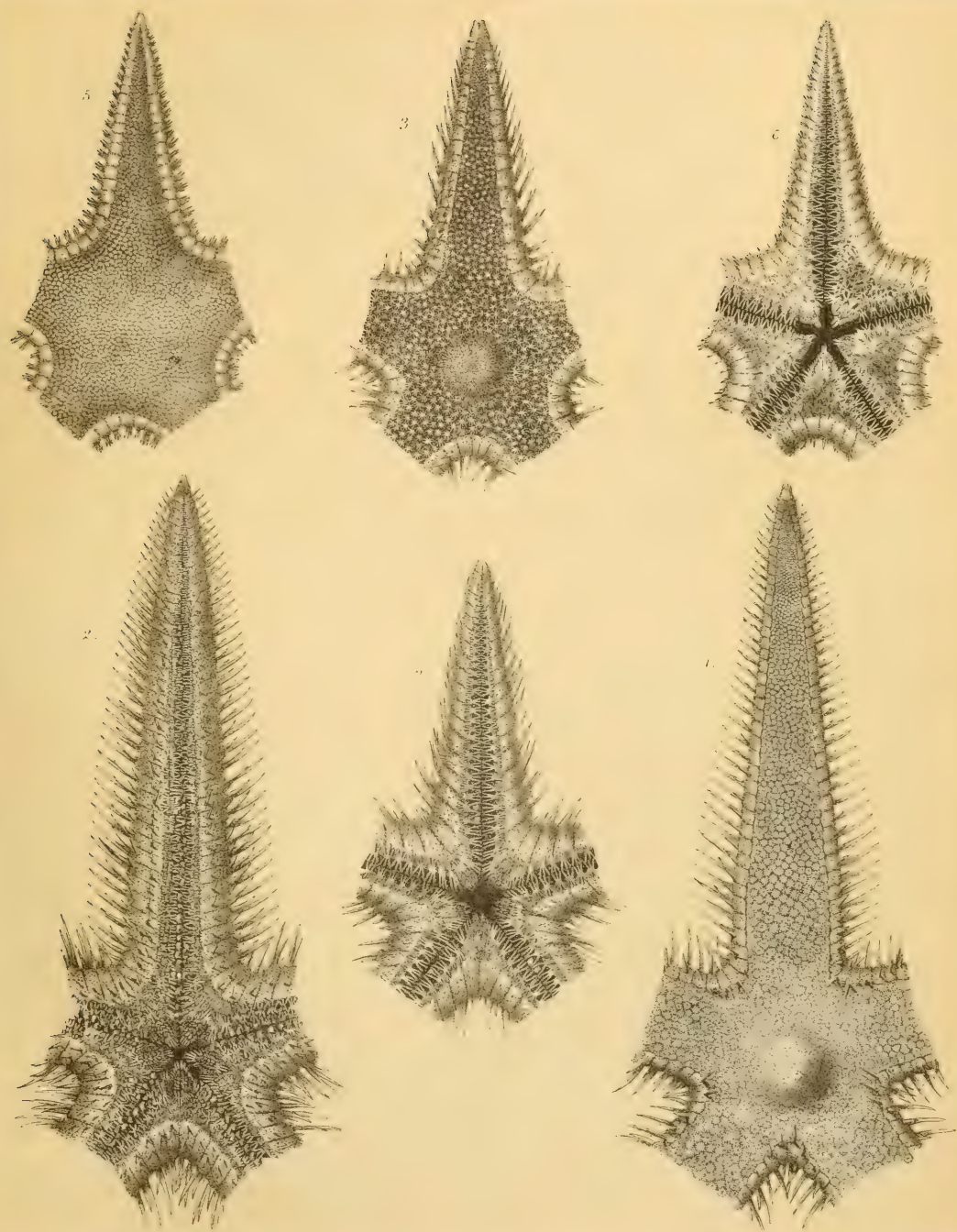
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5-6. ASTROPECTEN HERMATOPHILUS, n. sp.

3-4. ASTROPECTEN PECTINATUS, n. sp.
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1-2. *ASTROPECTEN ACANTHIFER*, n.sp.

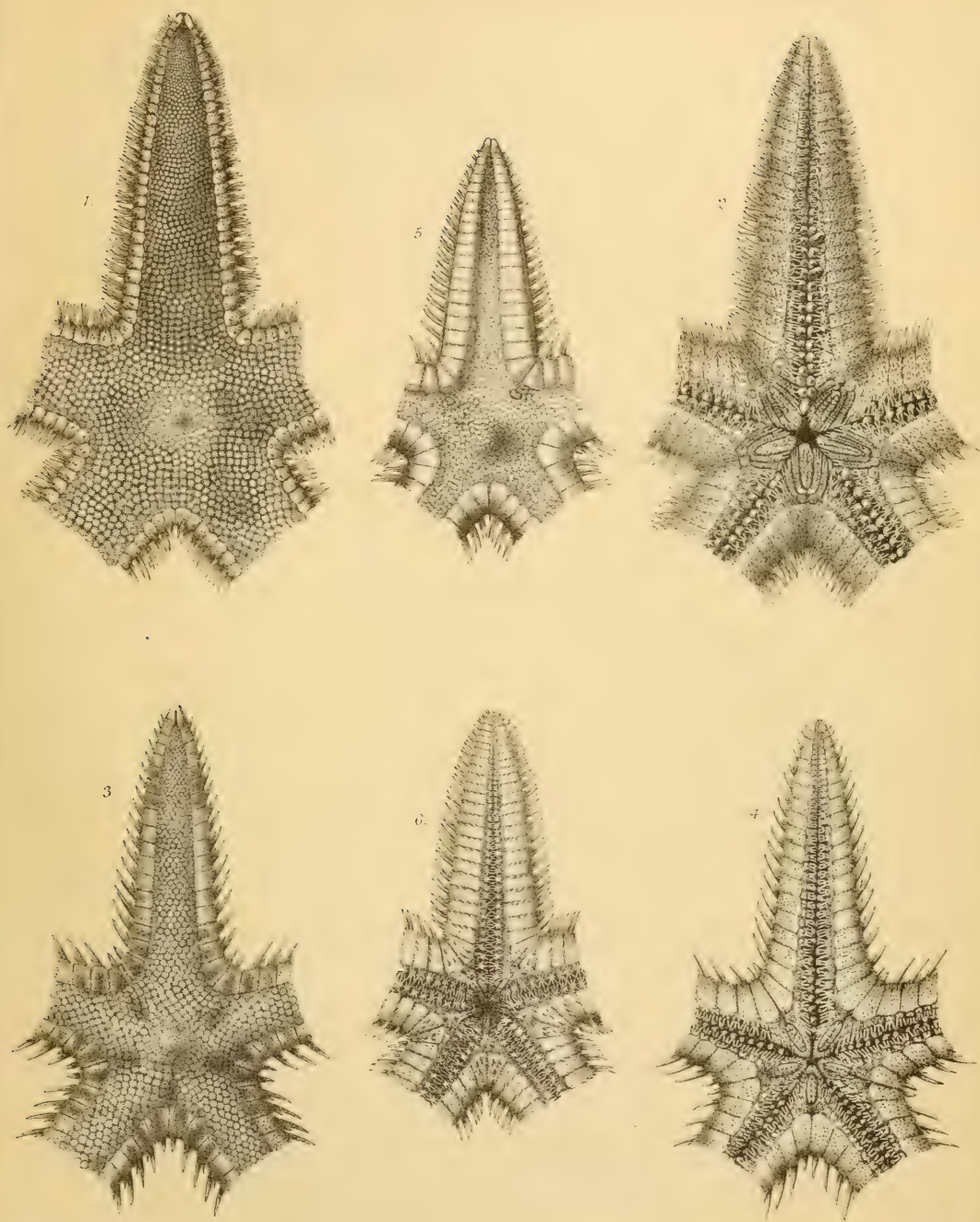
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1-2. ASTROPECTEN PONTOPOREUS, n.sp.

3-4. ASTROPECTEN GRANULATUS, Müller & Troschel

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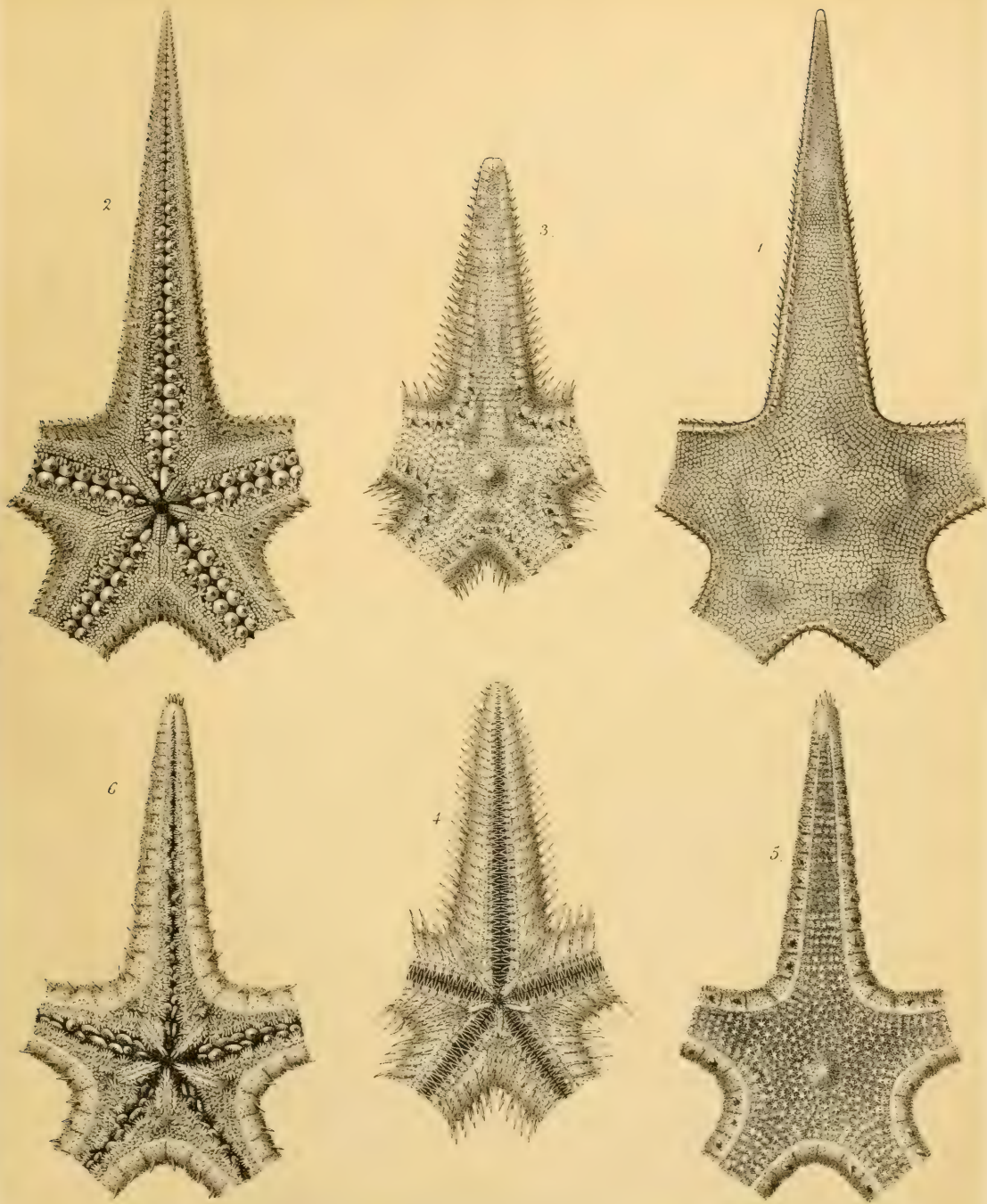
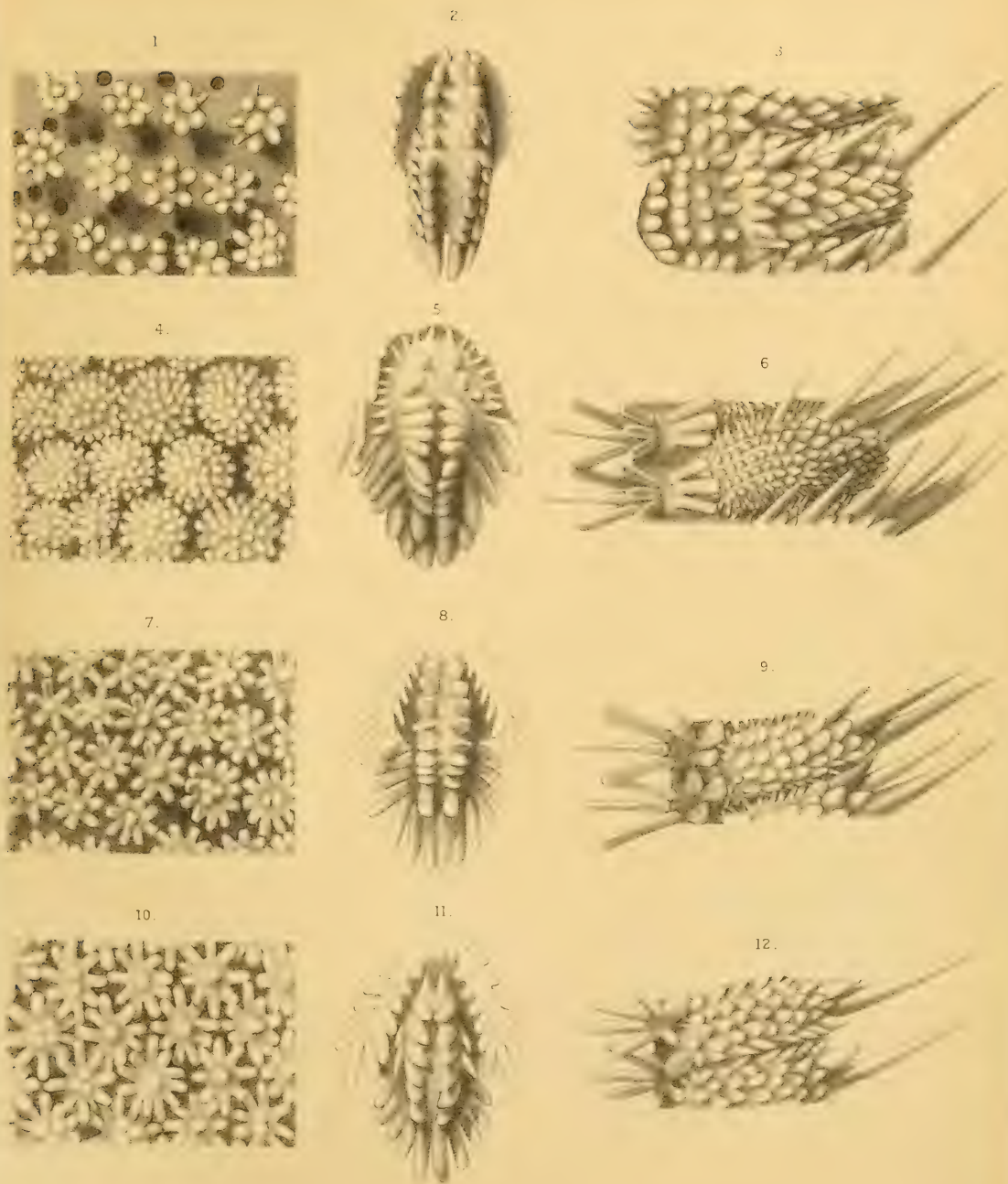


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[Michael 3d.]

1-3. *ASTROPECTEN BREVISPINUS*, n.sp.
 7-9. *ASTROPECTEN HERMATOPHILUS*, n.sp.

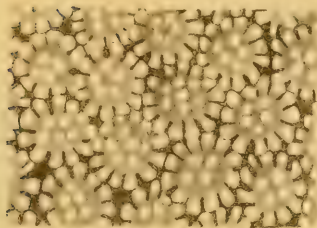
4-6. *ASTROPECTEN PECTINATUS*, n.sp.
 10-12. *ASTROPECTEN MONACANTHUS*, n.sp.

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[For macroscopic figures of this species see Pl. XXXIV. figs. 3, 4.]	
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Fig. 12. Adambulacral and infero-marginal plates ; magnified 8 diameters.	
[For macroscopic figures of this species see Pl. XXXV. figs. 1, 2.]	

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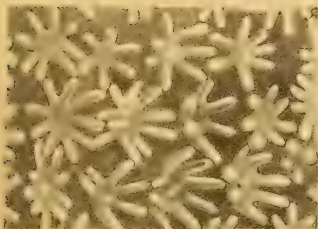
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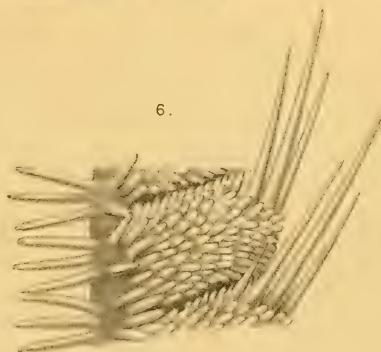
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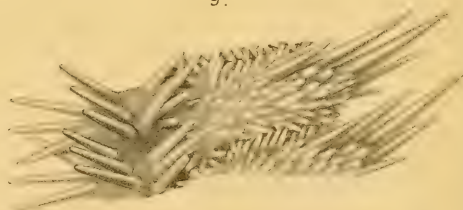
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11.



12.

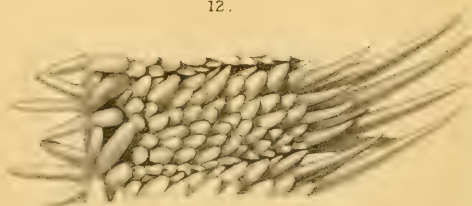


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[For macroscopic figures of this species see Pl. XXXVI. figs. 5, 6.]	

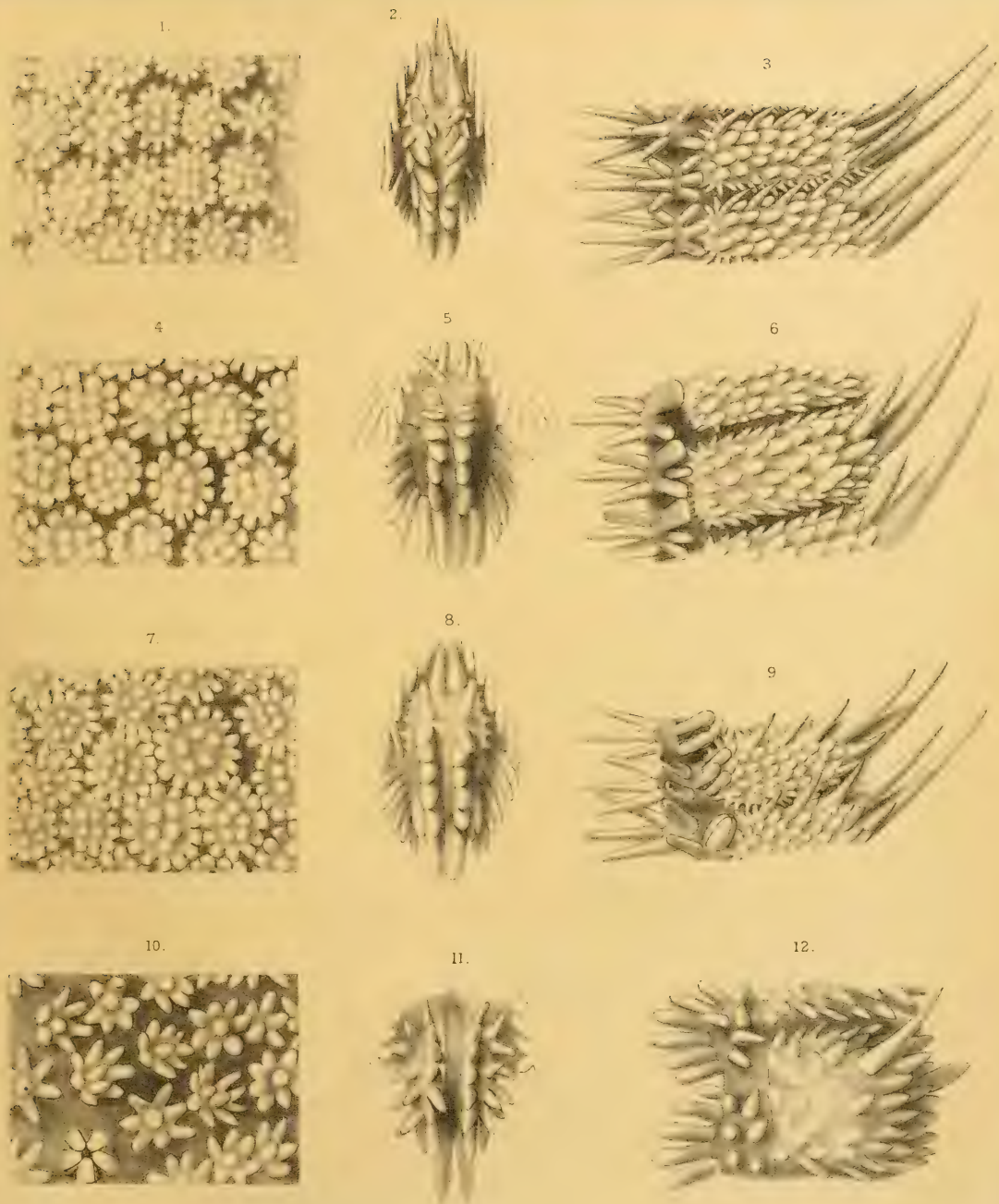
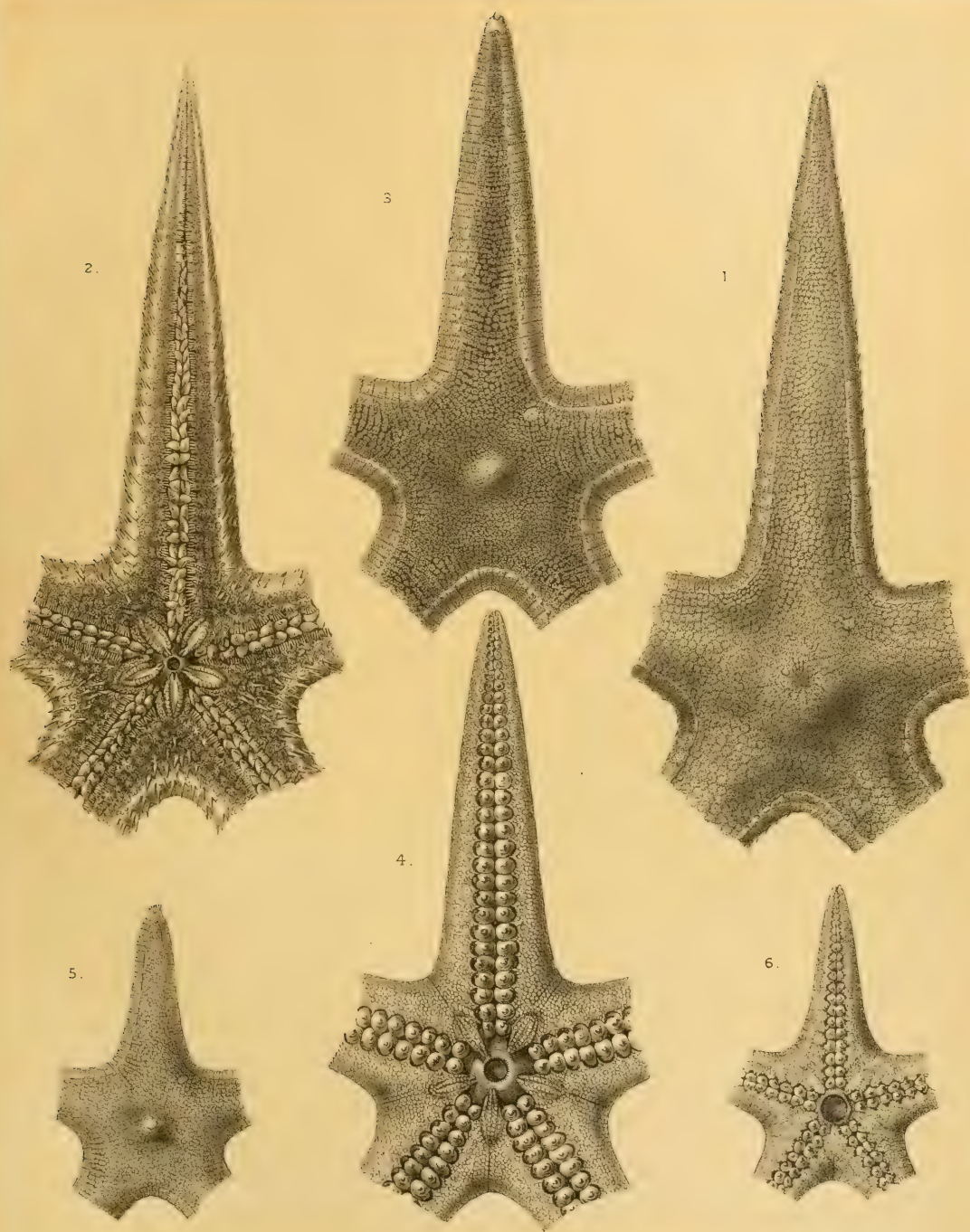


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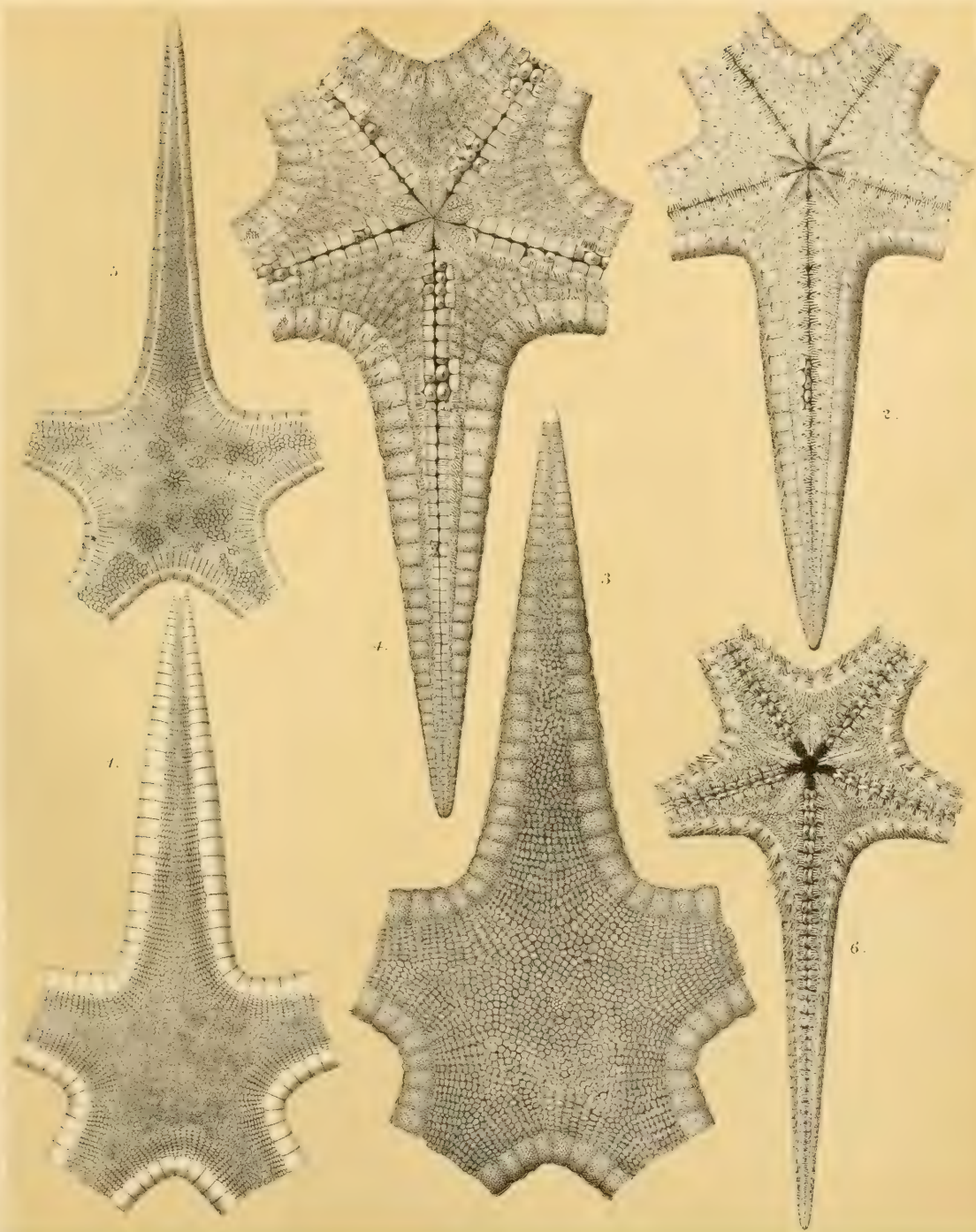
1-2. *PSILASTER ACUMINATUS*, n. sp.

3-6. *PHOXASTER PUMILUS*, n. sp.

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Fig. 7. A portion of the abactinal surface ; magnified 18 diameters.	
Fig. 8. Adambulacral and infero-marginal plates ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. XL. figs. 1, 2.]	
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Fig. 9. A portion of the abactinal surface ; magnified 25 diameters.	
Fig. 10. Adambulacral and infero-marginal plates ; magnified 15 diameters.	
Fig. 11. Mouth-plates ; magnified 7 diameters.	
[For macroscopic figures of this species see Pl. XLI. figs. 5, 6.]	

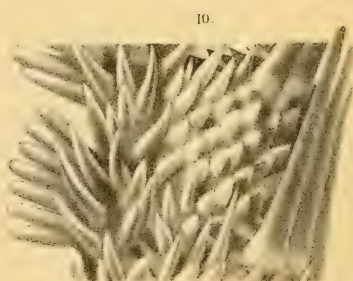
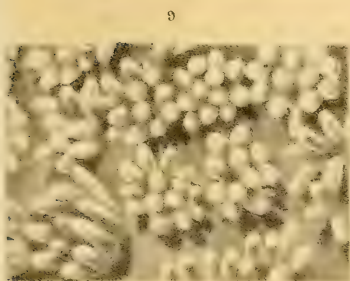
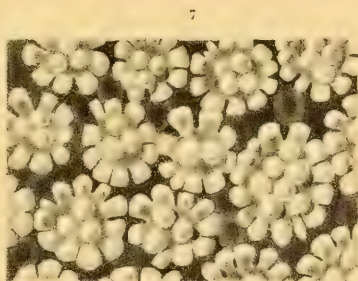
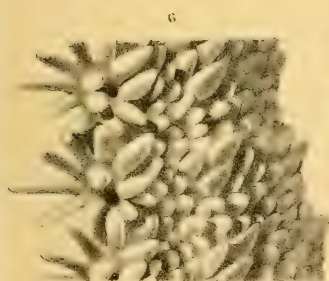
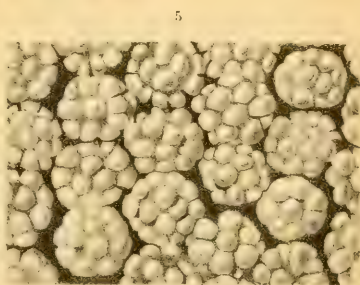
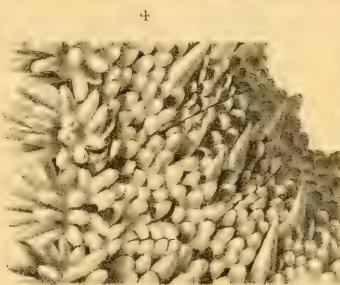
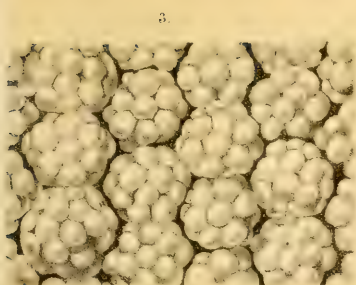
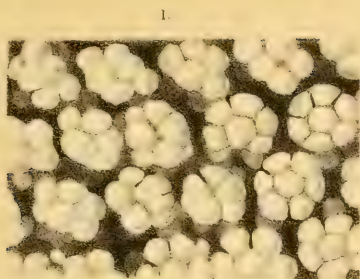


PLATE XLIII.

PLATE XLIII.

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Fig. 1. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 2. Actinal aspect; magnified $1\frac{1}{2}$ diameters.

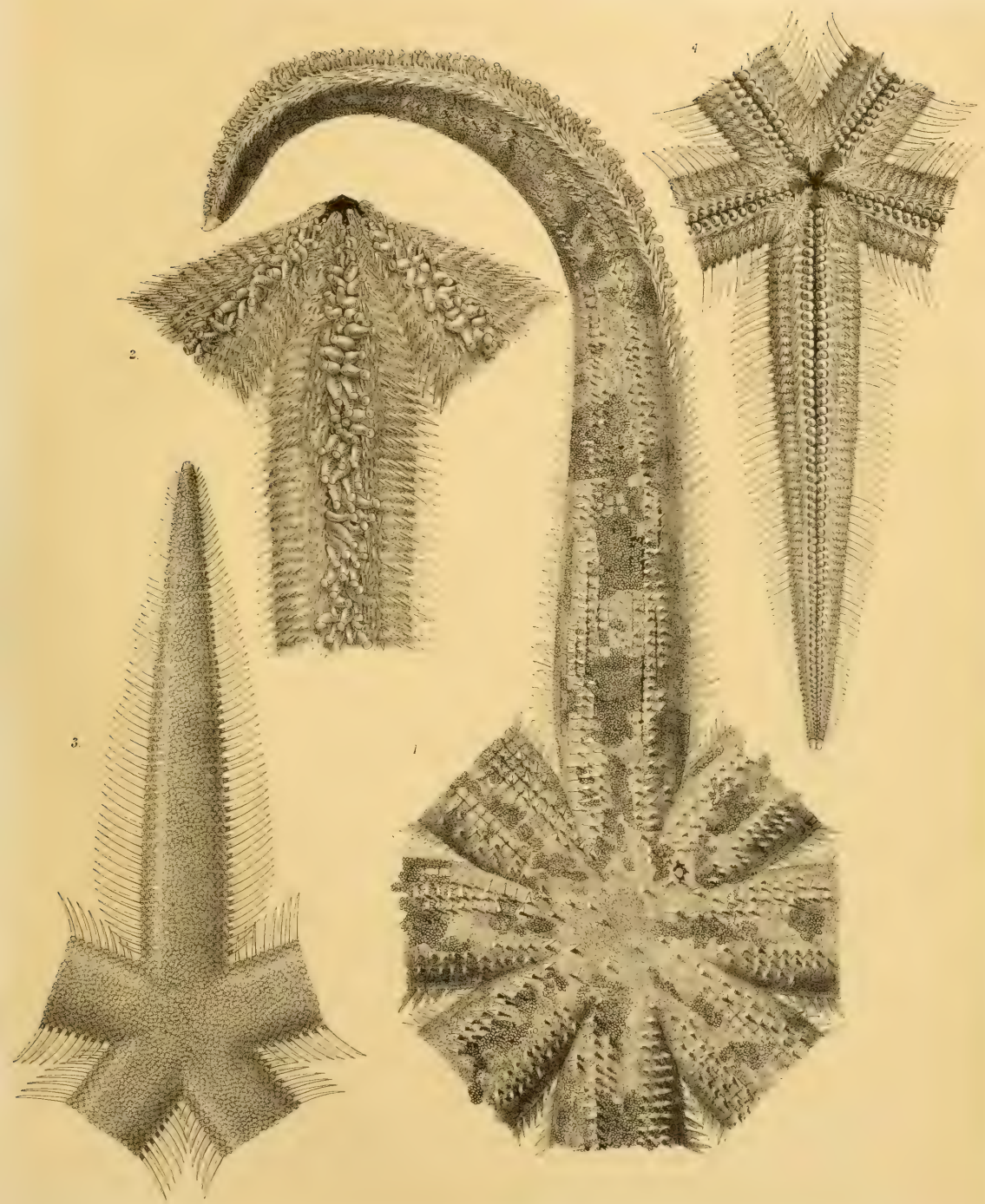
[For magnified details of this species see Pl. XLV. figs. 9, 10.]

Figs. 3, 4. <i>LUIDIA LONGISPINA</i> , n. sp.	254
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Fig. 3. Abactinal aspect; magnified 2 diameters.

Fig. 4. Actinal aspect; magnified 2 diameters.

[For magnified details of this species see Pl. XLV. figs. 3, 4.]



1-2. LUIDIA ASPERA, n.sp.

3-4. LUIDIA LONGISPINA, n.sp.

PLATE XLIV.

PLATE XLIV.

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Fig. 2. Actinal aspect ; natural size.	
[For magnified details of this species see Pl. XLV. figs. 1, 2.]	
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Fig. 4. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XLV. figs. 7, 8.]	
Figs. 5, 6. <i>LUIDIA FORFICIFER</i> , n. sp.	258
Fig. 5. Abactinal aspect ; magnified 2 diameters.	
Fig. 6. Actinal aspect ; magnified 2 diameters.	
[For magnified details of this species see Pl. XLV. figs. 5, 6.]	

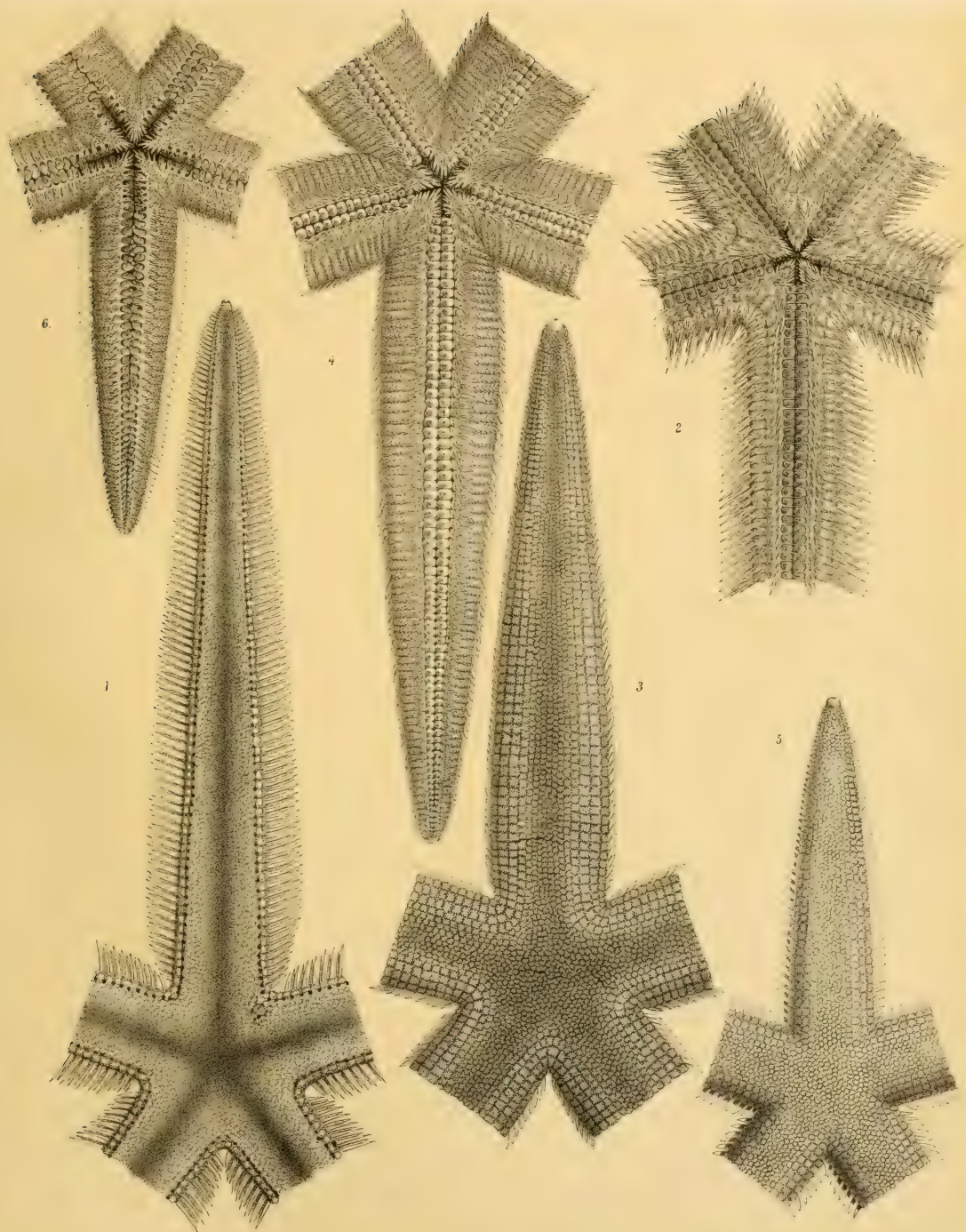
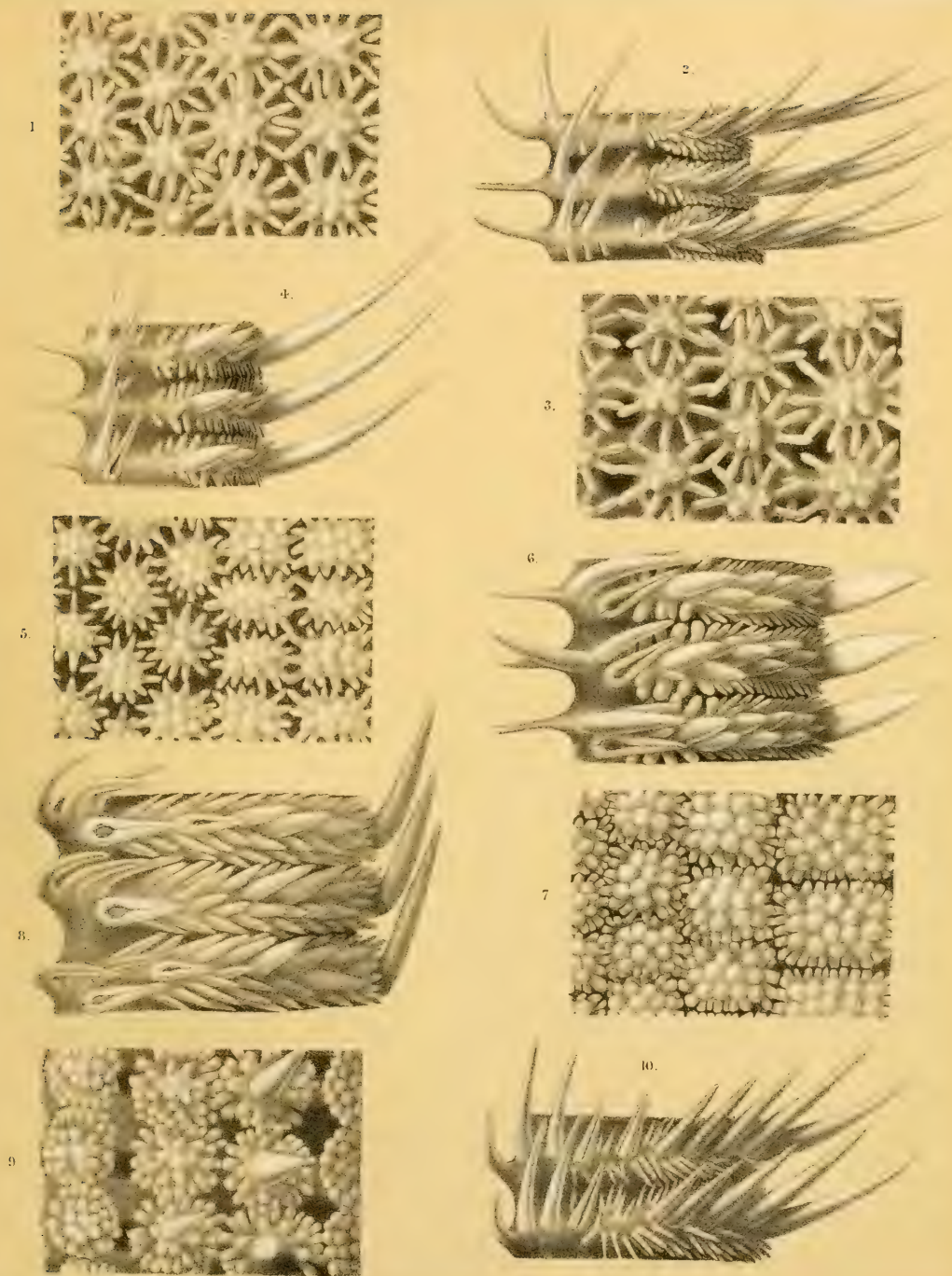


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Fig. 1. A portion of the abactinal surface ; magnified 15 diameters.	
Fig. 2. Adambulacral and infero-marginal plates ; magnified 6 diameters.	
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Figs. 3, 4. <i>LUIDIA LONGISPINA</i> , n. sp.	254
Fig. 3. A portion of the abactinal surface ; magnified 20 diameters.	
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[For macroscopic figures of this species see Pl. XLIII. figs. 3, 4.]	
Figs. 5, 6. <i>LUIDIA FORFICIFER</i> , n. sp.	258
Fig. 5. A portion of the abactinal surface ; magnified 15 diameters.	
Fig. 6. Adambulacral and infero-marginal plates ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. XLIV. figs. 5, 6.]	
Figs. 7, 8. <i>LUIDIA LIMBATA</i> , n. sp.	251
Fig. 7. A portion of the abactinal surface ; magnified 15 diameters.	
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[For macroscopic figures of this species see Pl. XLIII. figs. 1, 2.]	

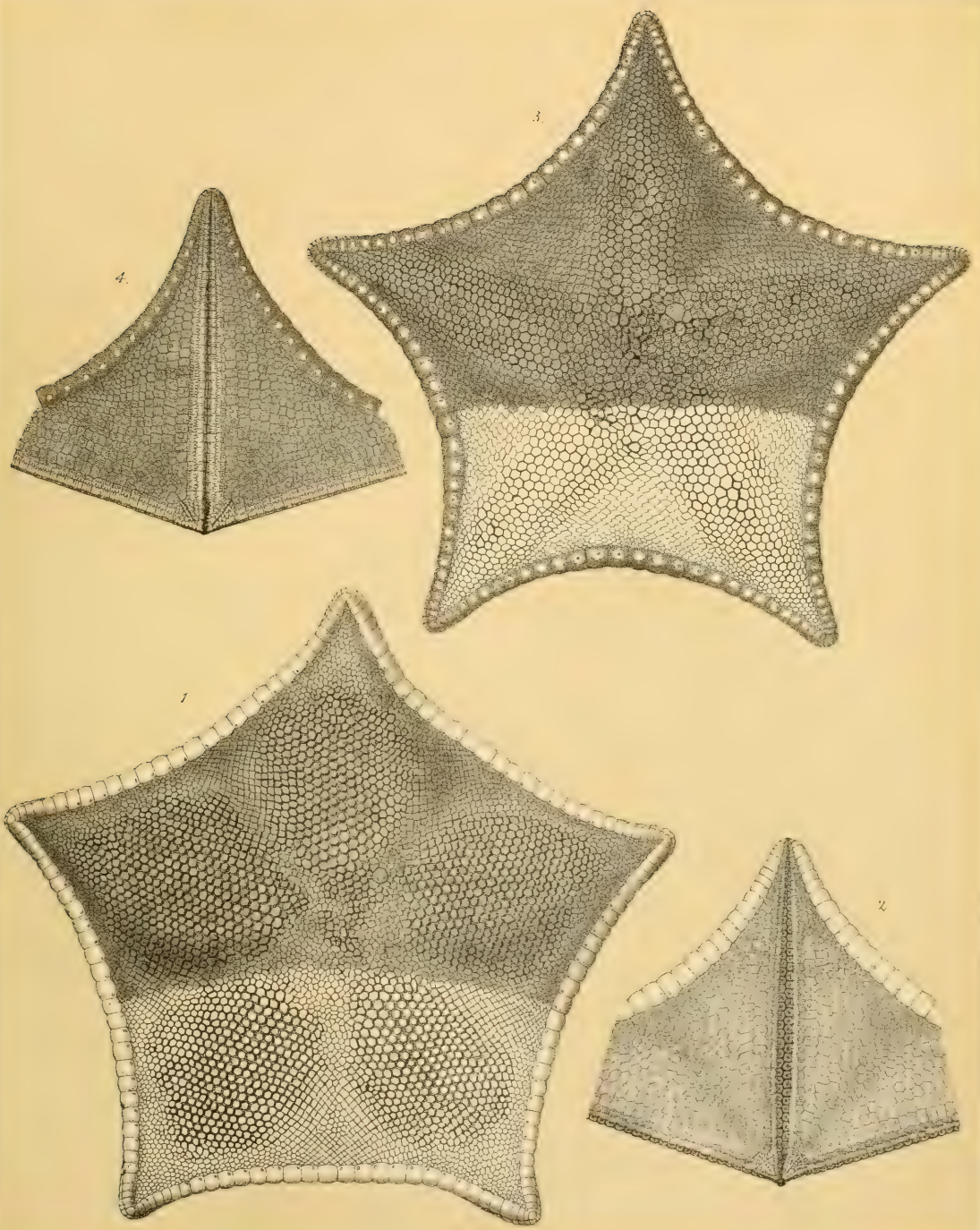


1-2. *LUIDIA AFRICANA*, n. sp. 3-4. *LUIDIA LONGISPINA*, n. sp.
 5-6. *LUIDIA FORCIFICER*, n. sp. 7-8. *LUIDIA LIMBATA*, n. sp.
 9-10. *LUIDIA ASPERA*, n. sp.

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PLATE XLVI.

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Fig. 3. Abactinal aspect ; natural size.	
Fig. 4. Actinal aspect ; natural size.	
[For magnified details of this species see Pl. XLIX. figs. 3, 4.]	



W.H. Crowther del. H. Hollick lith.

1-2. PENTAGONASTER JAPONICUS, n. sp.

3-4. PENTAGONASTER PATAGONICUS, n. sp.

PLATE XLVII.

PLATE XLVII.

Figs. 1, 2. GNATHASTER MERIDIONALIS, Smith, sp.	Page 287
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Fig. 1. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 2. Actinal aspect; magnified $1\frac{1}{2}$ diameters.

[For macroscopic figures of a young example see Pl. XLVIII. figs. 5, 6; for magnified details of the same see Pl. XLIX. figs. 11, 12.]

Figs. 3, 4. MIMASTER COGNATUS, n. sp.	336
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Fig. 3. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 4. Actinal aspect; magnified $1\frac{1}{2}$ diameters.

[For magnified details of this species see Pl. LXII. figs. 4, 5.]

Error in the legend of the Plate:

For "n. sp." after GNATHASTER MERIDIONALIS *read* "Smith, sp."

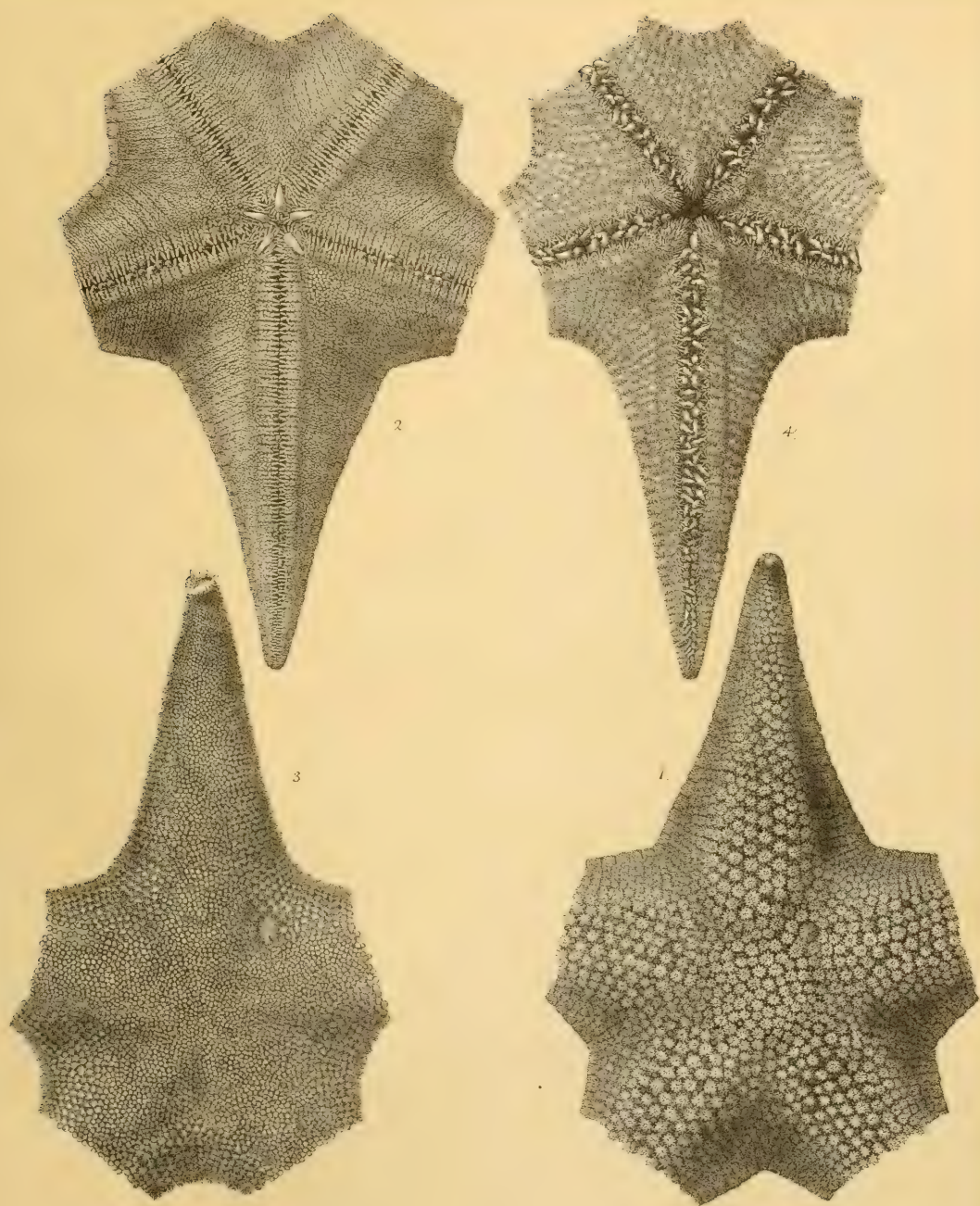
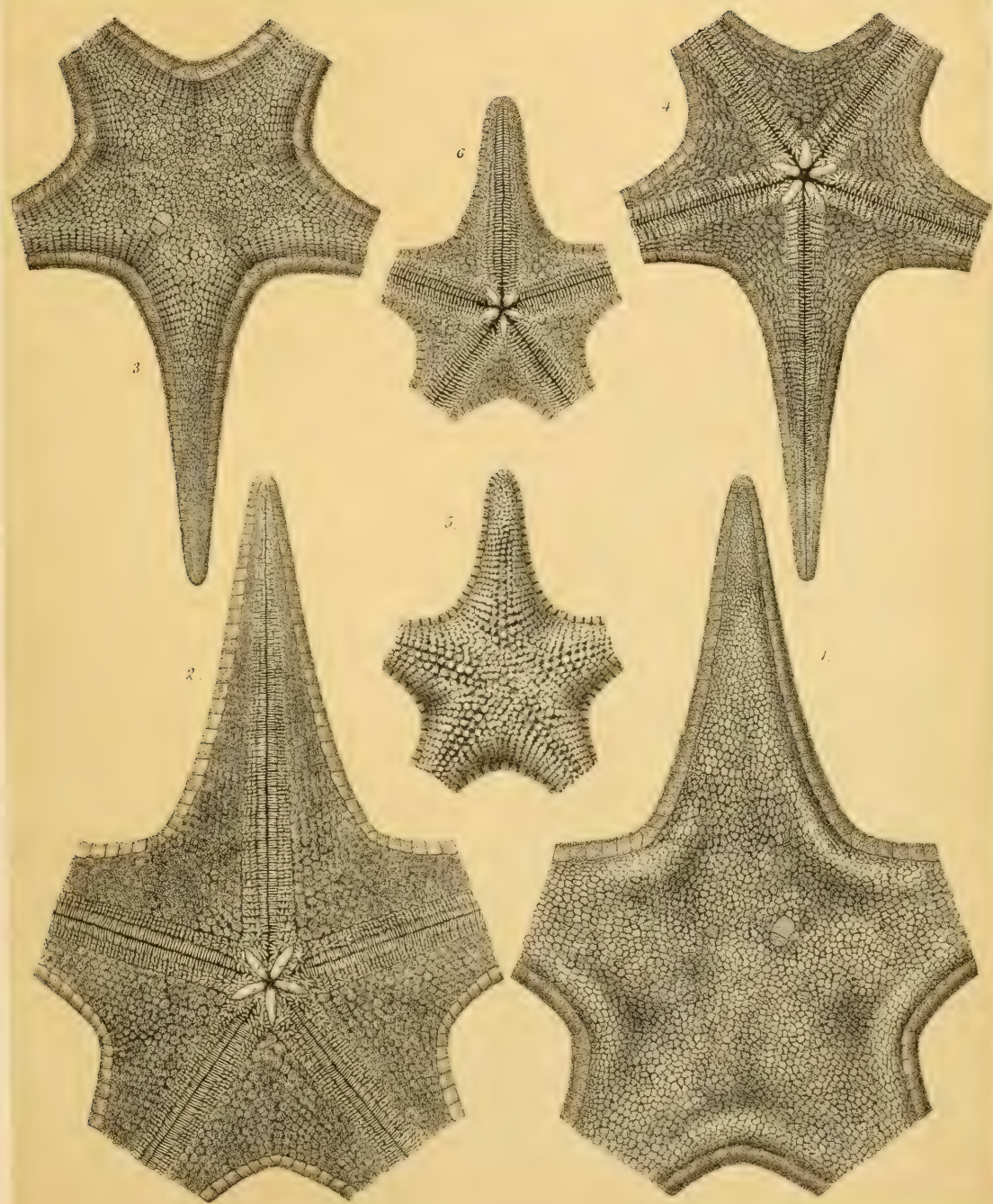


PLATE XLVIII.

PLATE XLVIII.

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[For magnified details of this species see Pl. XLIX. figs. 5-8 ; for macroscopic figures of a young example see Pl. XIX. figs. 5, 6.]	
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Fig. 5. Abactinal aspect of a young example ; magnified 3 diameters.	
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[For magnified details of this example see Pl. XLIX. figs. 11, 12 ; for macroscopic figures of an adult example see Pl. XLVII. figs. 1, 2.]	



Will Crowther del., Holmückeln

Barhart imp

1-2. GNATHASTER ELONGATUS, n.sp.

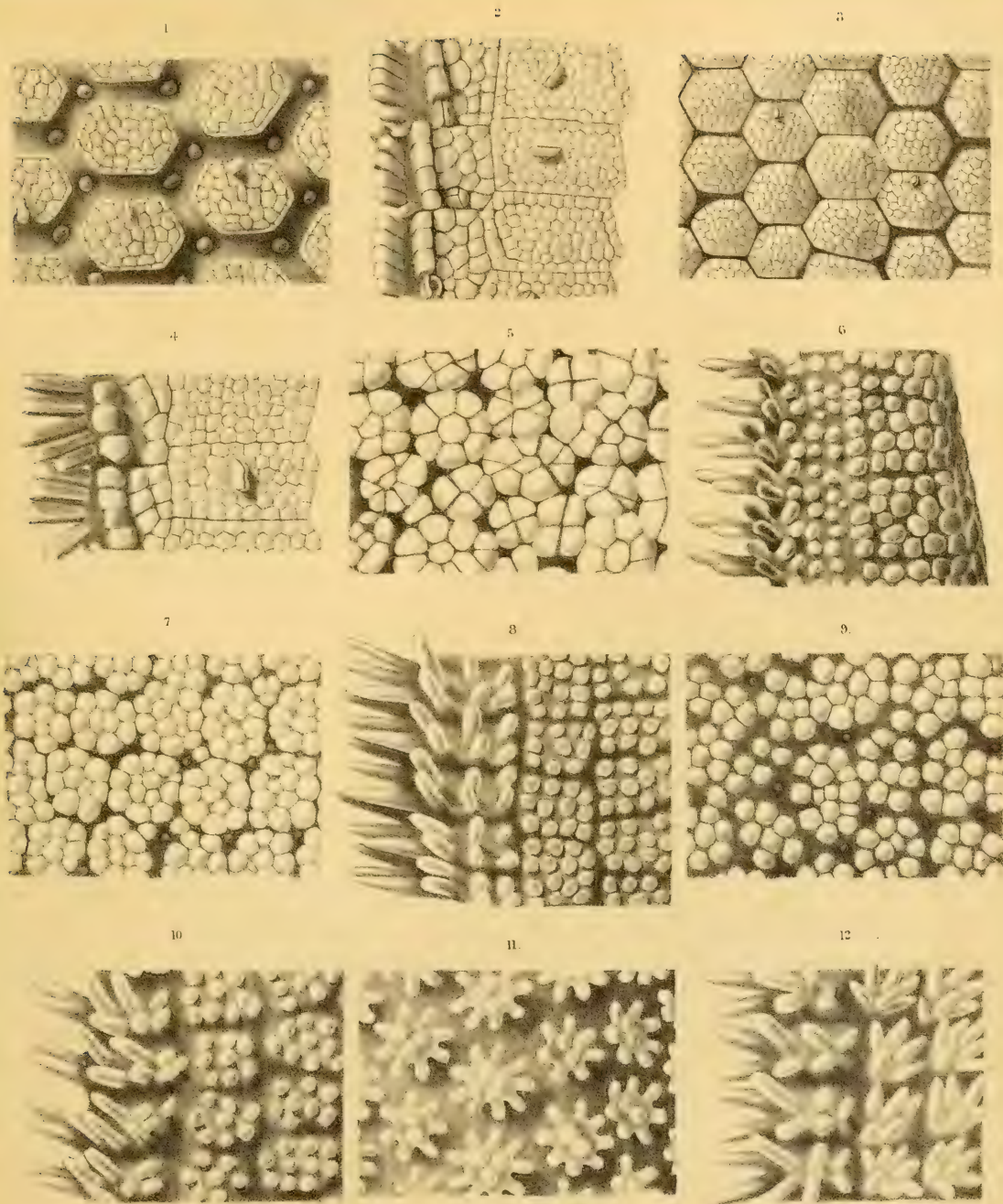
3-4. GNATHASTER ELONGATUS, n.sp. (Var)

5-6. GNATHASTER MERIDIONALIS, Smith, sp (Juv.)

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[For macroscopic figures of this species see Pl. XLVI. figs. 1, 2.]	
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[For macroscopic figures of this species see Pl. XLVI. figs. 3, 4.]	
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Fig. 5. A portion of the abactinal surface of a young example ; magnified 20 diameters.	
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[For macroscopic figures of this example see Pl. XIX. figs. 5, 6.]	
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Fig. 9. A portion of the abactinal surface ; magnified 20 diameters.	
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Fig. 11. A portion of the abactinal surface of a young example ; magnified 20 diameters.	
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[For macroscopic figures of this example see Pl. XLVIII. figs. 5, 6 ; for those of an adult example see Pl. XLVII. figs. 1, 2.]	



W.H. Crowther del et lith.

Minert Bros. imp

1-2. *PENTAGONASTER JAPONICUS*, n. sp.
 5-6. *GNATHASTER ELONGATUS*, n. sp., (juv).
 9-10. *GNATHASTER ELONGATUS*, n. sp., (var).

3-4. *PENTAGONASTER PATAGONICUS*, n. sp.
 7-8. *GNATHASTER ELONGATUS*, n. sp.
 11-12. *GNATHASTER MERIDIONALIS*, Smith, sp. (juv).

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Fig. 1. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.

Fig. 2. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.

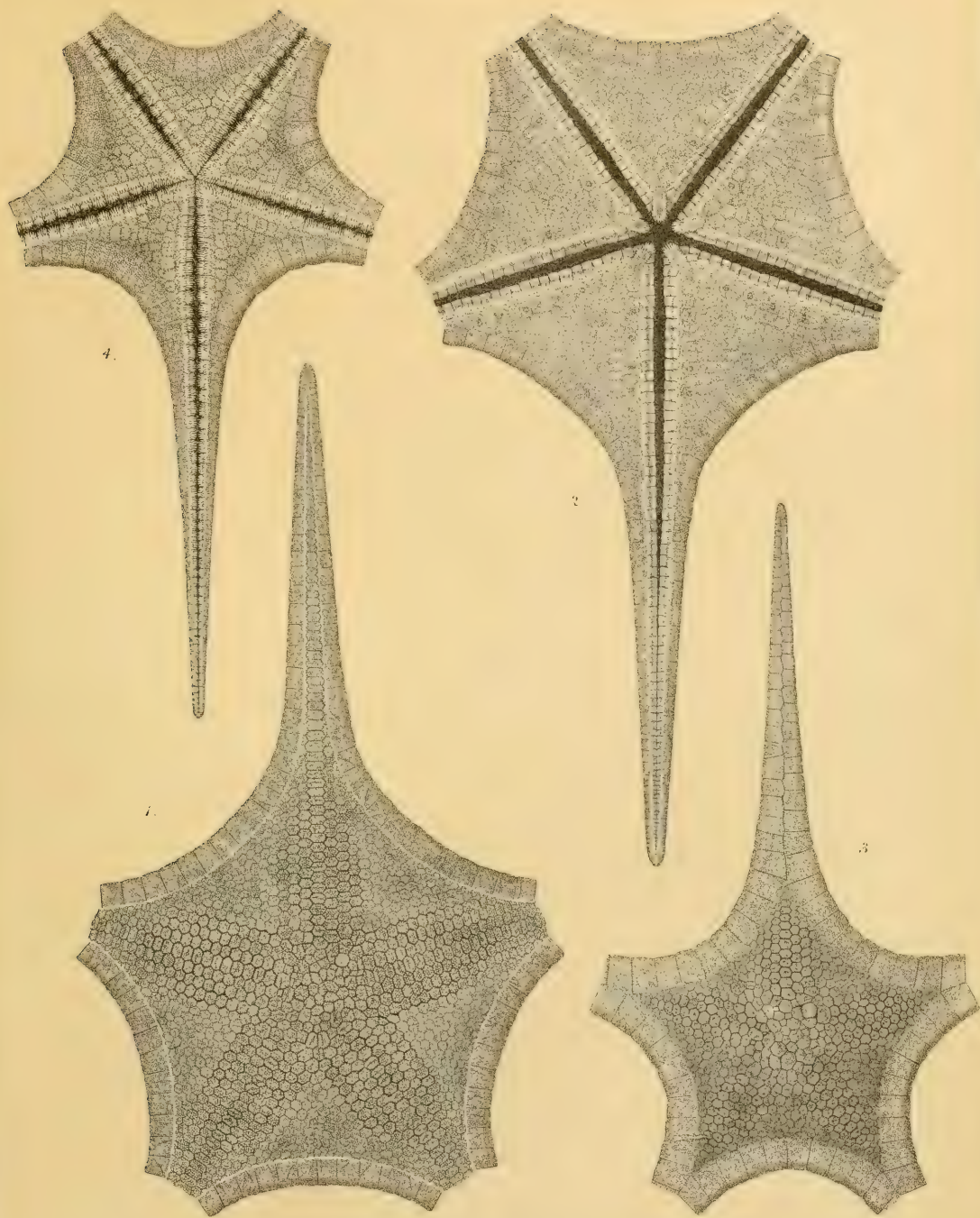
[For magnified details of this species see Pl. LIII. figs. 7, 8.]

Figs. 3, 4. <i>NYPHASTER PROTENTUS</i> , n. sp.	303
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Fig. 3. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters. "

Fig. 4. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.

[For magnified details of this species see Pl. LIII. figs. 9, 10.]



W. H. Cowther del. Hellick lith.

Hanhart sculp.

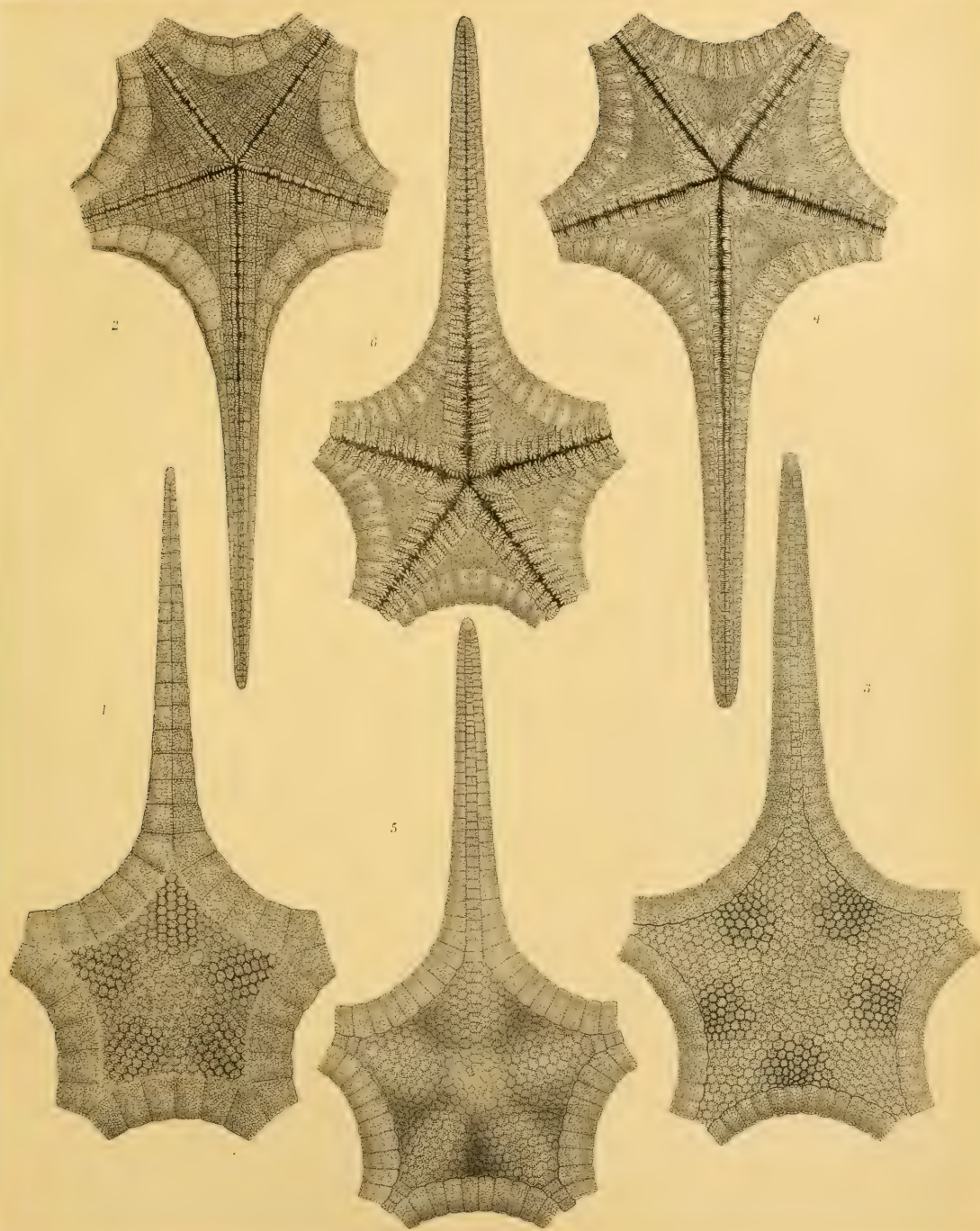
1-2. NYMPHASTER SYMBOLICUS, n. sp.

3-4. NYMPHASTER PROTENTUS, n. sp.

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Fig. 2. Actinal aspect ; magnified 2 diameters.	
[For magnified details of this species see Pl. LIII. figs. 5, 6.]	
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Fig. 3. Abactinal aspect ; magnified 2 diameters.	
Fig. 4. Actinal aspect ; magnified 2 diameters.	
[For magnified details of this species see Pl. LIII. figs. 3, 4.]	
Figs. 5, 6. <i>PARAGONASTER CTENIPES</i> , n. sp.	311
Fig. 5. Abactinal aspect ; magnified 2 diameters.	
Fig. 6. Actinal aspect ; magnified 2 diameters.	
[For magnified details of this species see Pl. LIII. figs. 1, 2.]	



W. H. Crowther del.

Miner Bros. lith.

1-2. NYMPHASTER ALBIDUS, n. sp.

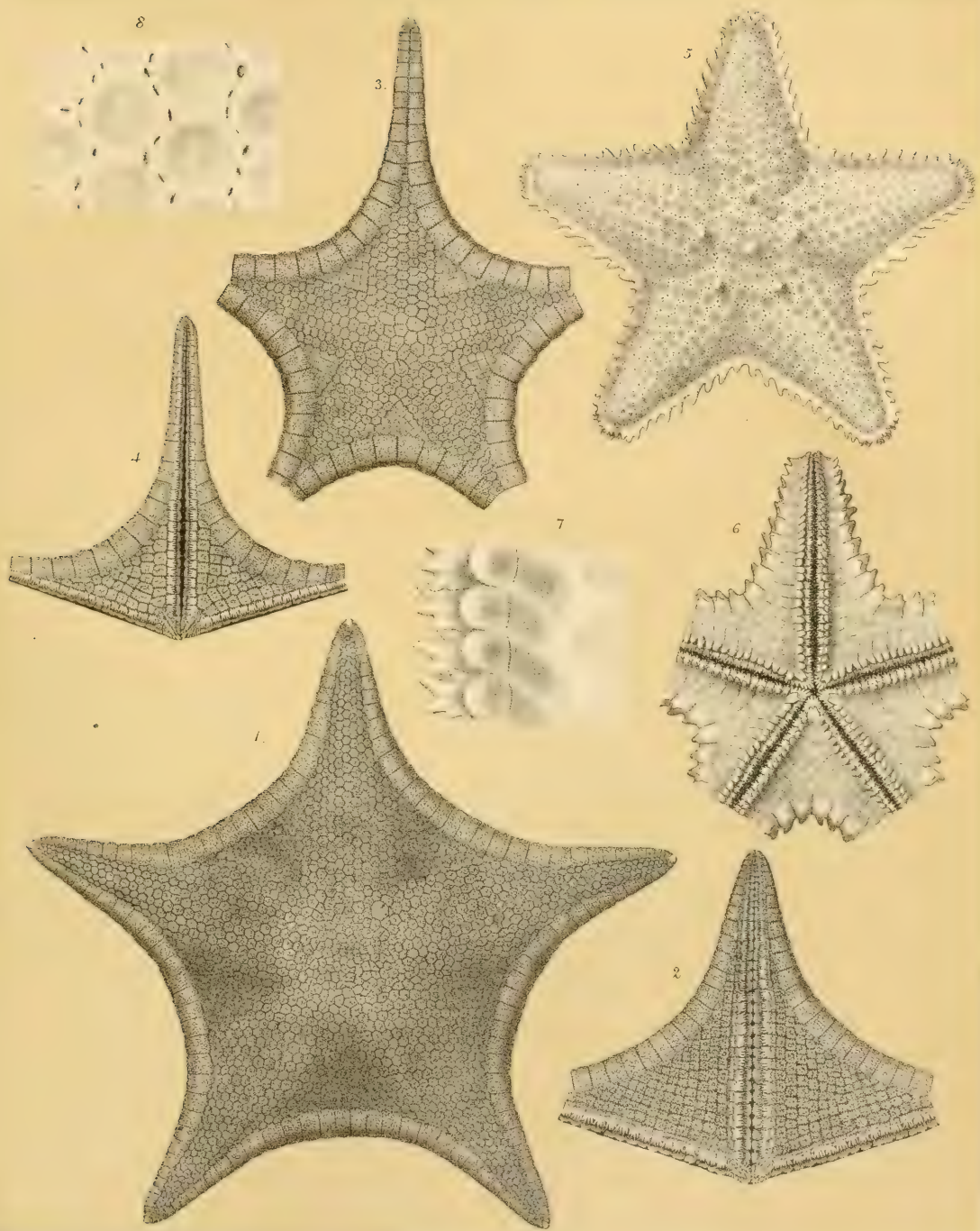
3-4. PARAGONASTER CYLINDRATUS, n. sp.

5-6. PARAGONASTER CTENIPES, n. sp.

PLATE LII.

PLATE LII.

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1-2. *PENTAGONASTER ARGUATUS*, n. sp.

3-4. *NYMPHASTER BIPUNCTUS*, n. sp.

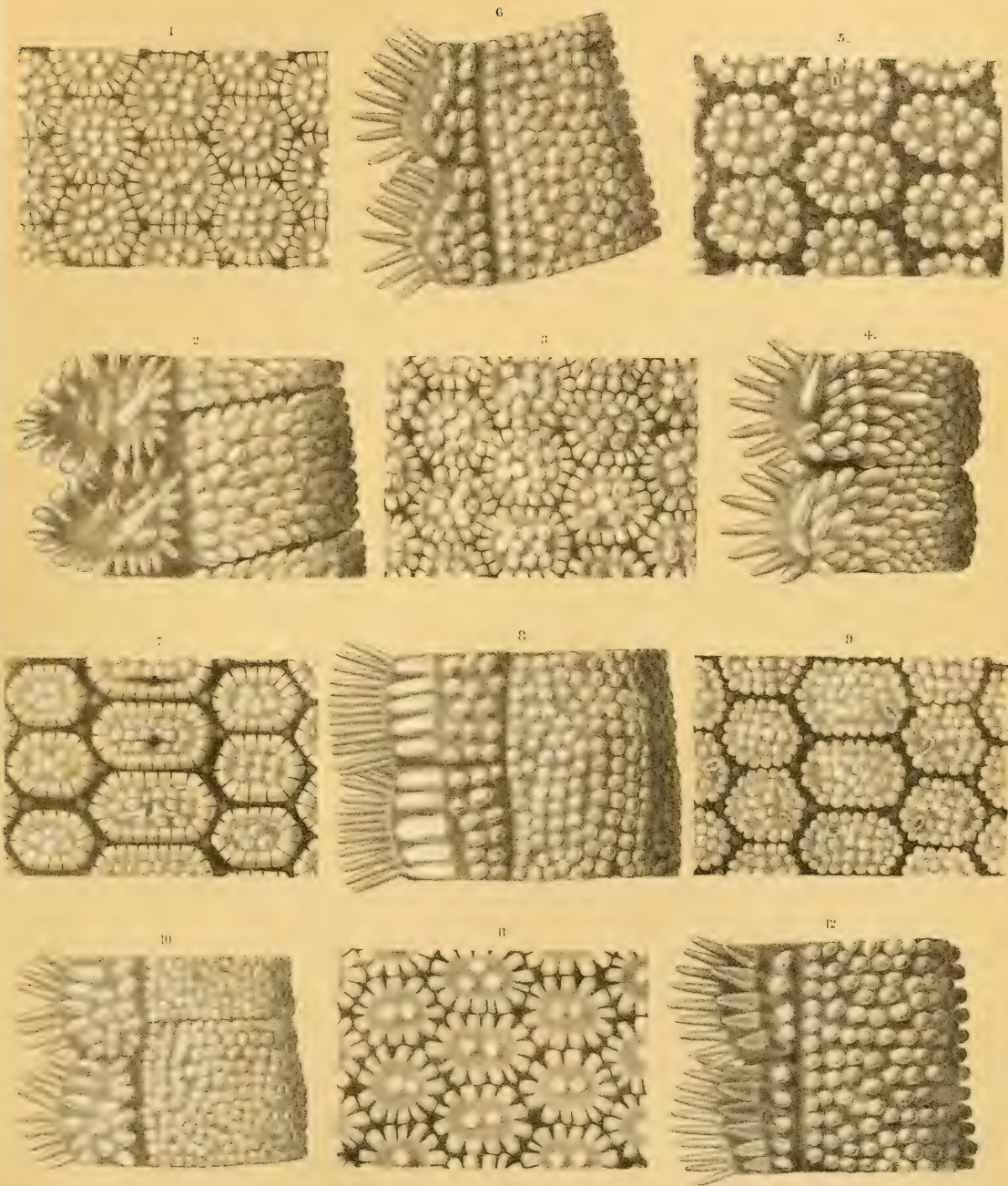
5-8. *GYMNASTERIA CARINIFERA* (Lamarek), V. Marlens (juv.)

Hanhart imp.

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PLATE LIII.

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Figs. 1, 2. <i>PARAGONASTER CTENIPES</i> , n. sp.	311
Fig. 1. A portion of the abactinal surface ; magnified 15 diameters.	
Fig. 2. Adambulacral and infero-marginal plates ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. LI. figs. 5, 6.]	
Figs. 3, 4. <i>PARAGONASTER CYLINDRATUS</i> , n. sp.	314
Fig. 3. A portion of the abactinal surface ; magnified 12 diameters.	
Fig. 4. Adambulacral and infero-marginal plates ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. LI. figs. 3, 4.]	
Figs. 5, 6. <i>NYMPHASTER ALBIDUS</i> , n. sp.	306
Fig. 5. A portion of the abactinal surface ; magnified 20 diameters.	
Fig. 6. Adambulacral and infero-marginal plates ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. LI. figs. 1, 2.]	
Figs. 7, 8. <i>NYMPHASTER SYMBOLICUS</i> , n. sp.	297
Fig. 7. A portion of the abactinal surface ; magnified 10 diameters.	
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[For macroscopic figures of this species see Pl. L. figs. 1, 2.]	
Figs. 9, 10. <i>NYMPHASTER PROTENTUS</i> , n. sp.	303
Fig. 9. A portion of the abactinal surface ; magnified 12 diameters.	
Fig. 10. Adambulacral and infero-marginal plates ; magnified 12 diameters.	
[For macroscopic figures of this species see Pl. L. figs. 3, 4.]	
Figs. 11, 12. <i>NYMPHASTER BIPUNCTUS</i> , n. sp.	301
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Fig. 12. Adambulacral and infero-marginal plates ; magnified 20 diameters.	
[For macroscopic figures of this species see Pl. LII. figs. 3, 4.]	



1-2. PARAGONASTER CTENIPES, n. sp.
3-4. PARAGONASTER CYLINDRICUS, n. sp.
9-10. NYMPHASTER PROTENTUS, n. sp.

5-6. NYMPHASTER ALBIDUS, n. sp.
7-8. NYMPHASTER SYMBOLICUS, n. sp.
11-12. NYMPHASTER BIPUNCTUS, n. sp.

Monterey, Cal., U.S.A.

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Fig. 5. The extremity of a ray; magnified.	
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Fig. 7. One of the tubercle-like valvate pedicellariæ on the plates adjacent to the adambulacral plates, seen in profile; magnified.	

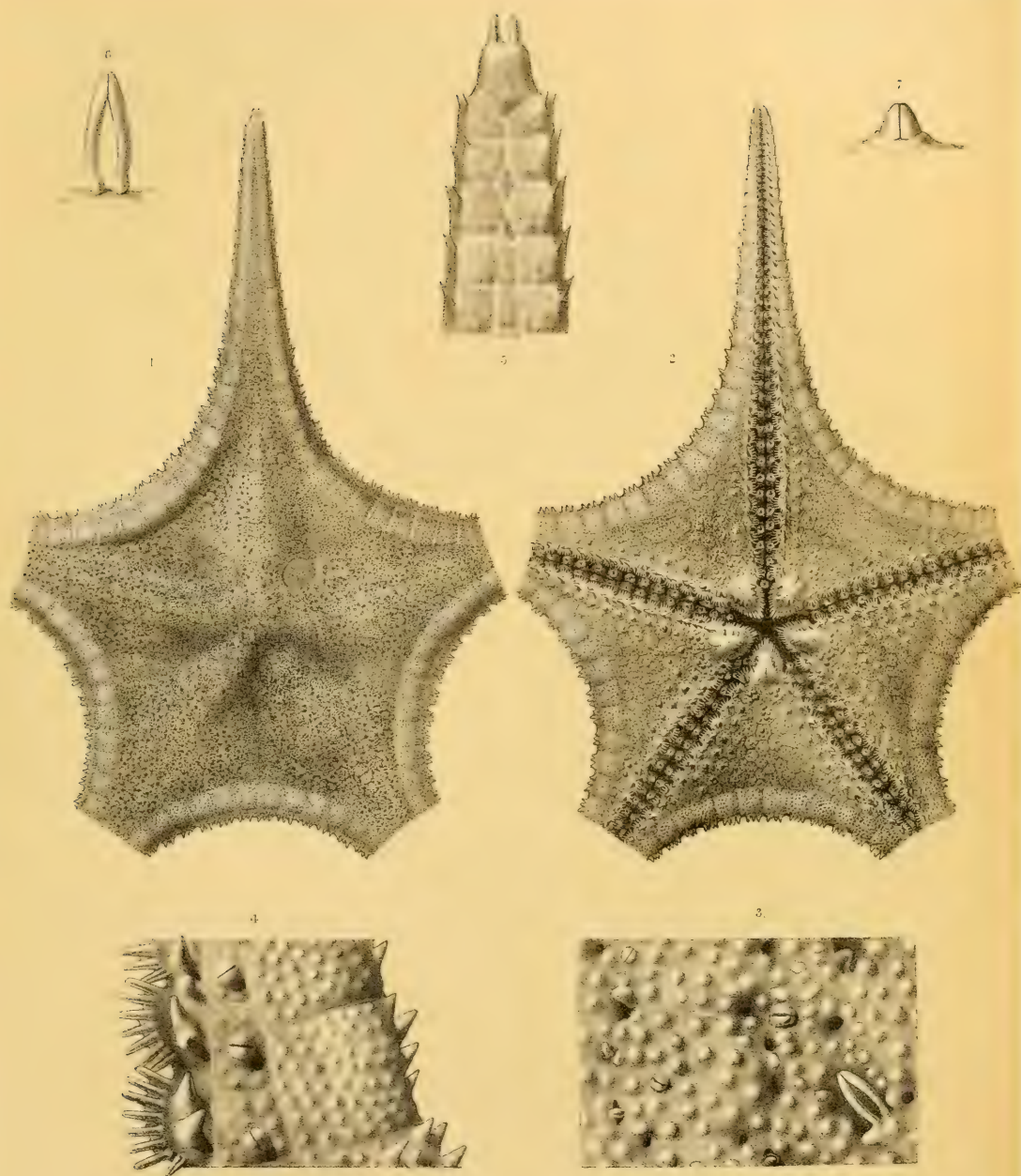


PLATE LV.

PLATE LV.

Figs. 1-7. NECTRIA OCELLIFERA (Lamarck), Gray,	Page
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Fig. 1. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.

Fig. 2. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.

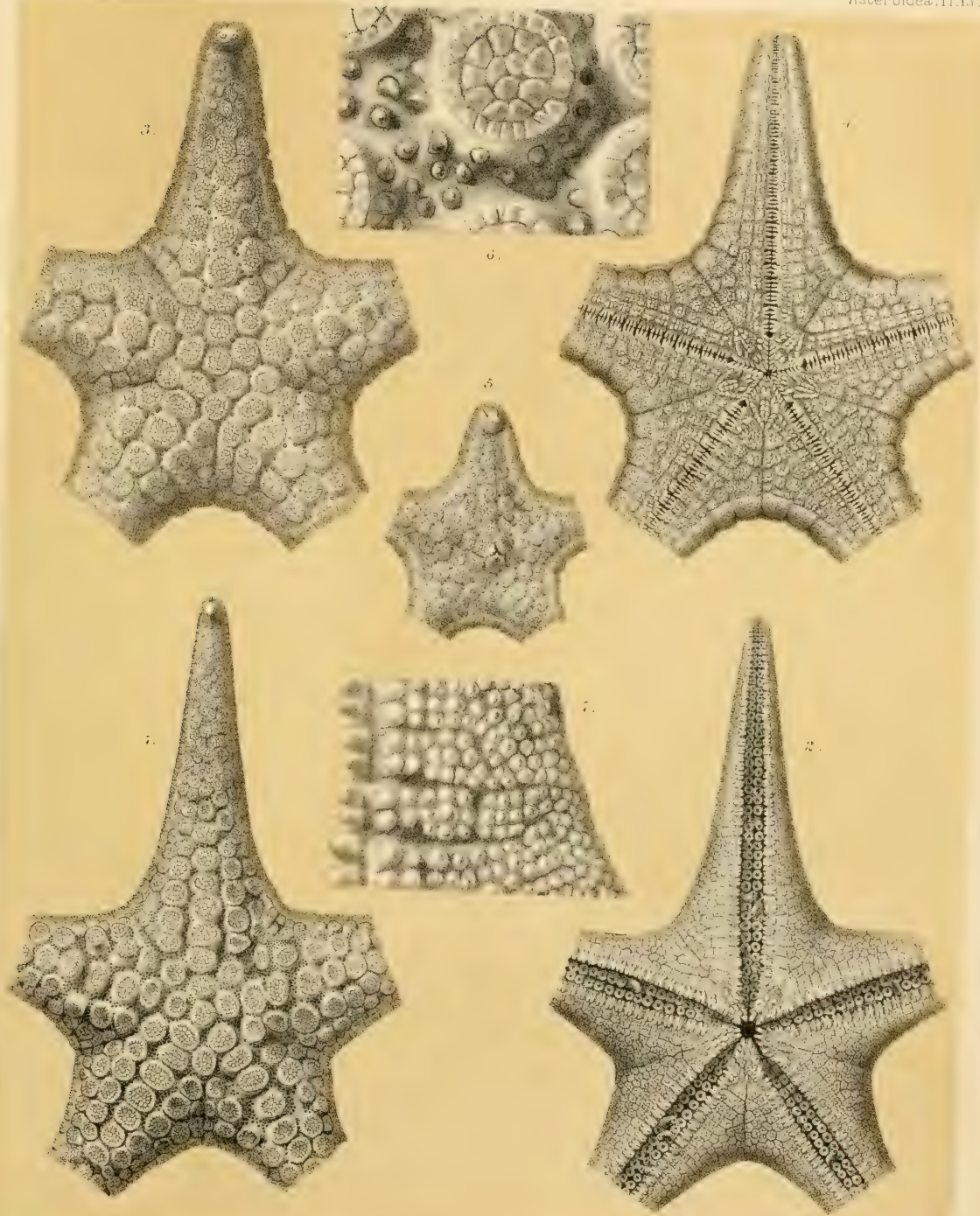
Fig. 3. Abactinal aspect of a younger example ; magnified 3 diameters.

Fig. 4. Actinal aspect of the same ; magnified 3 diameters.

Fig. 5. Abactinal aspect of a young example ; magnified 3 diameters.

Fig. 6. A portion of the abactinal surface of the adult ; magnified 9 diameters.

Fig. 7. Adambulacral plates and adjacent portion of the actinal surface ; magnified 9 diameters.



T.H. Michael del. Höllek lith.

NECTRIA OCELLIFERA (Lamarck), Gray

Hatched

PLATE LVI.

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Figs. 1-4. <i>CALLIASTER BACCATUS</i> , n. sp.	Page
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Fig. 1. Actinal aspect, magnified $1\frac{1}{2}$ diameters.

Fig. 2. Abactinal aspect, magnified $1\frac{1}{2}$ diameters.

Fig. 3. Adambulacral plates and adjacent portion of the actinal surface ; magnified 12 diameters.

Fig. 4. A portion of the abactinal surface ; magnified 12 diameters.

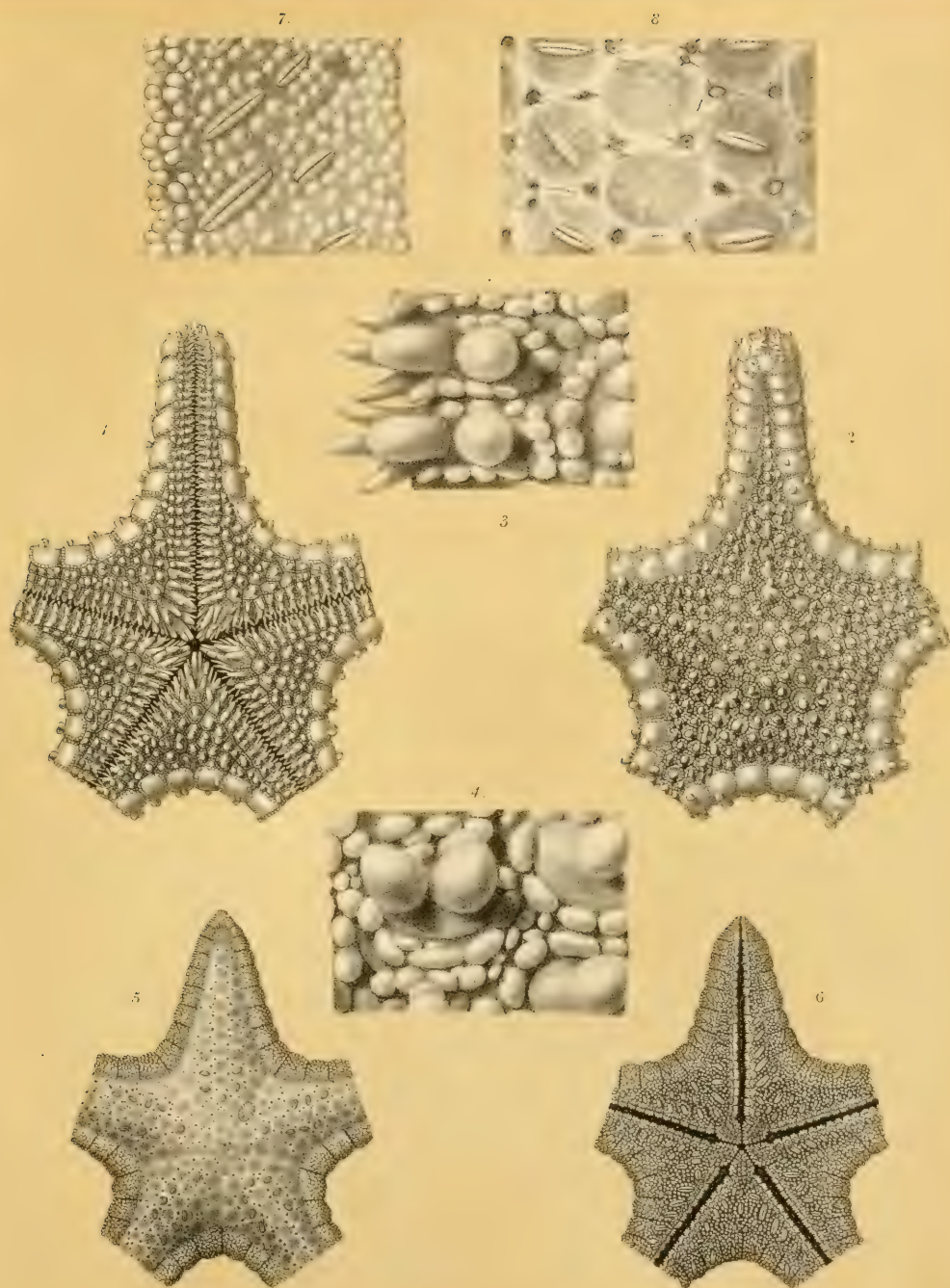
Figs. 5-8. <i>ANTHENA TUBERCULOSA</i> , Gray (?),	340
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Fig. 5. Abactinal aspect of a young example ; magnified 3 diameters.

Fig. 6. Actinal aspect of a young example ; magnified 3 diameters.

Fig. 7. Adambulacral plates and adjacent portion of the actinal surface ; magnified 20 diameters.

Fig. 8. A portion of the abactinal surface ; magnified 15 diameters.



, del. Hillebrand

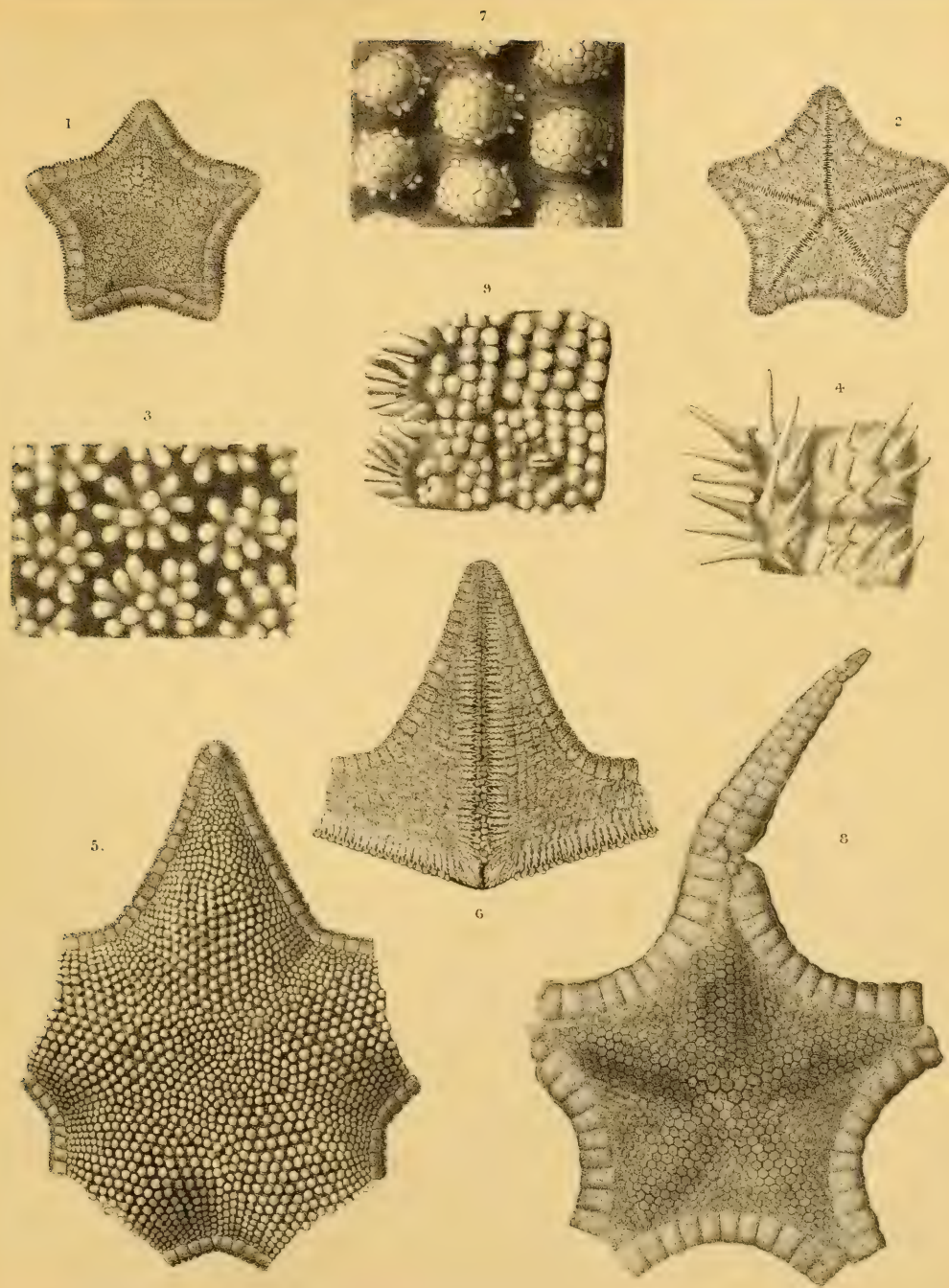
1-4. *CALLIASTER BACCATUS*, n. sp.

5-8. *ANTHENEAE TUBERCULOSA*, Gray, ♂, (juv)

PLATE LVII.

PLATE LVII.

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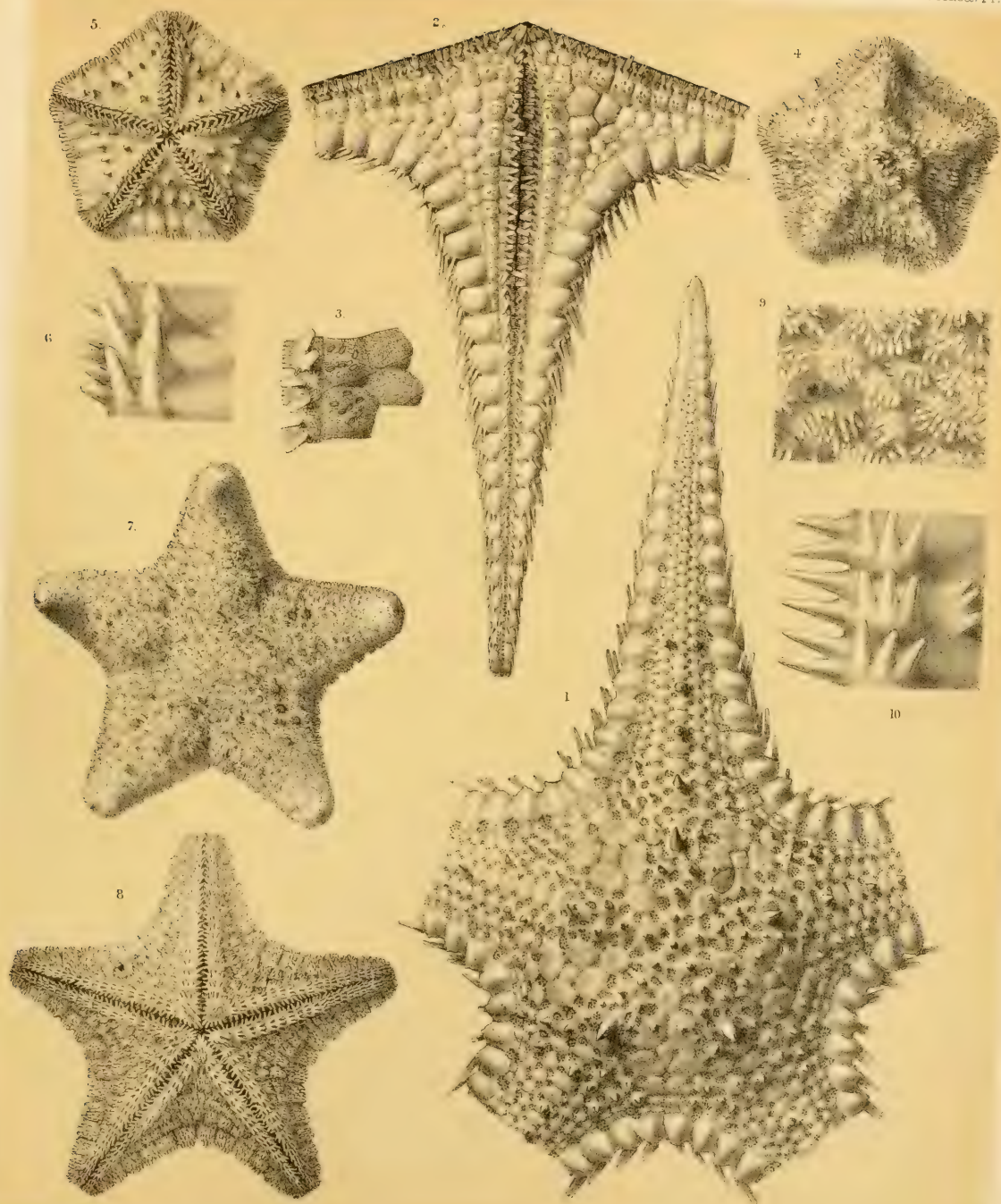


1-4. PENTAGONASTER LEPIDUS, n.sp. 5-7. GNATHASTER PILULATUS, n.sp.
8-9. NYMPHASTER BASILICUS, n.sp.

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1-3. *STELLASTER PRINCEPS*, n.sp.

4-6. *MARGINASTER FIMBRIATUS*, n.sp.

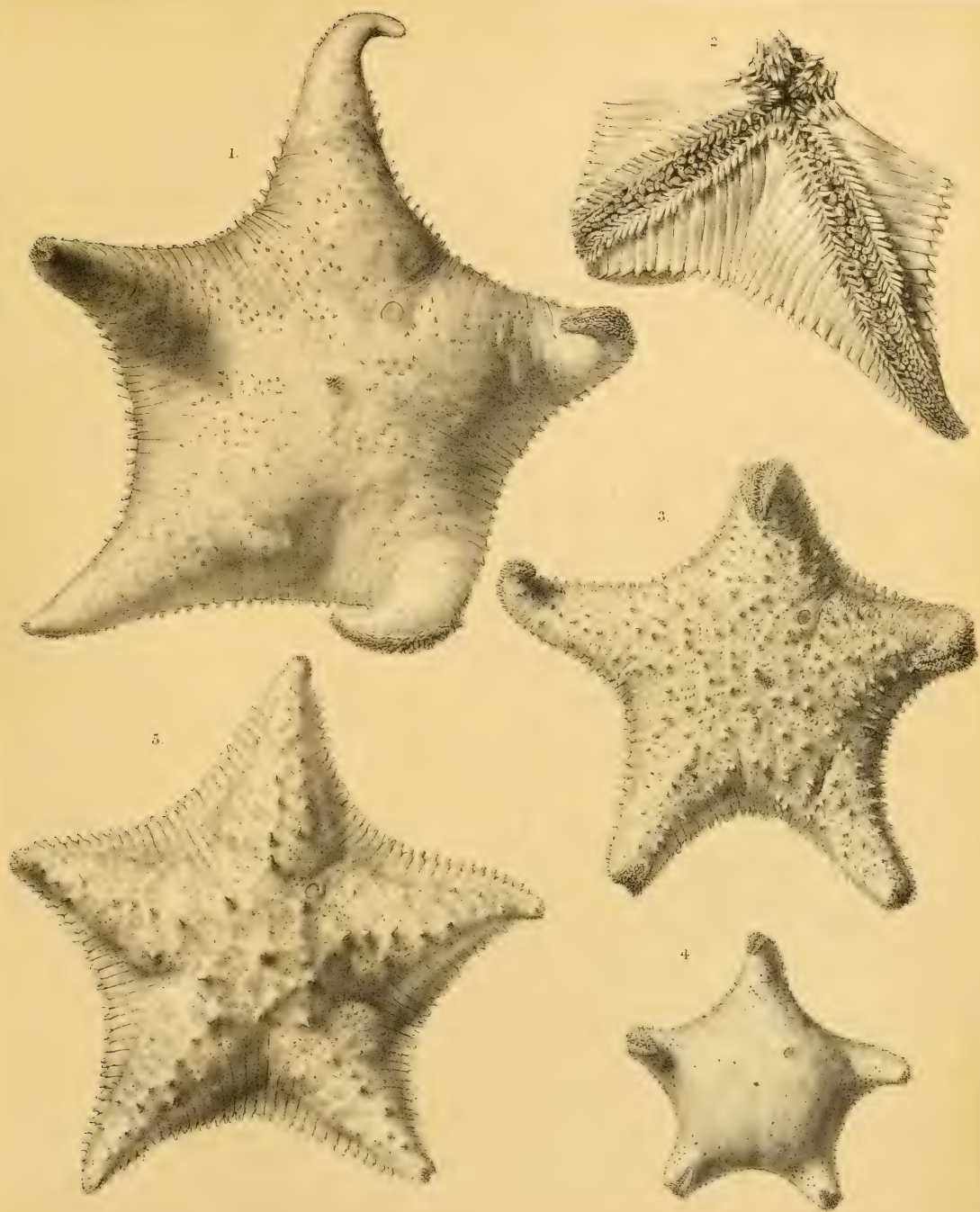
7-10. *LASIASTER VILLOSUS*, n.sp.

Mintern Bros. imp.

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PLATE LIX.

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Fig. 2. Actinal aspect; natural size.	
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1-2. *PORANIA GLABER*, n.sp.
4. *PORANIA SPICULATA*, n.sp.

3. *PORANIA ANTARCTICA*, Smith.
5. *PORANIA MAGELLANICA*, Studer.

Monter Bros. imp.

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Fig. 3.	Abactinal aspect; magnified 2 diameters.	
Fig. 4.	Actinal aspect; magnified 2 diameters.	
[For magnified details of this species see Pl. LXII. figs. 2, 3.]		

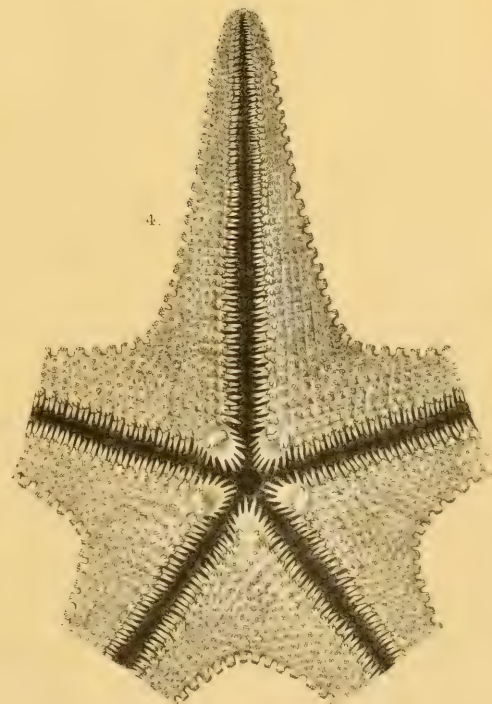
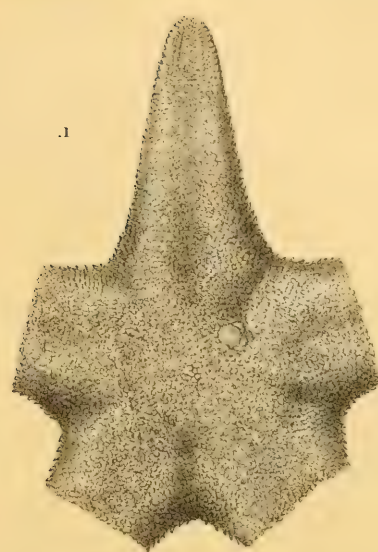
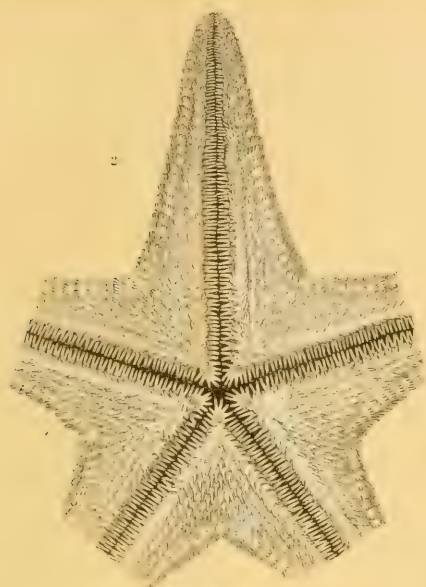


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Fig. 4. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. LXII. figs. 10, 11.]	

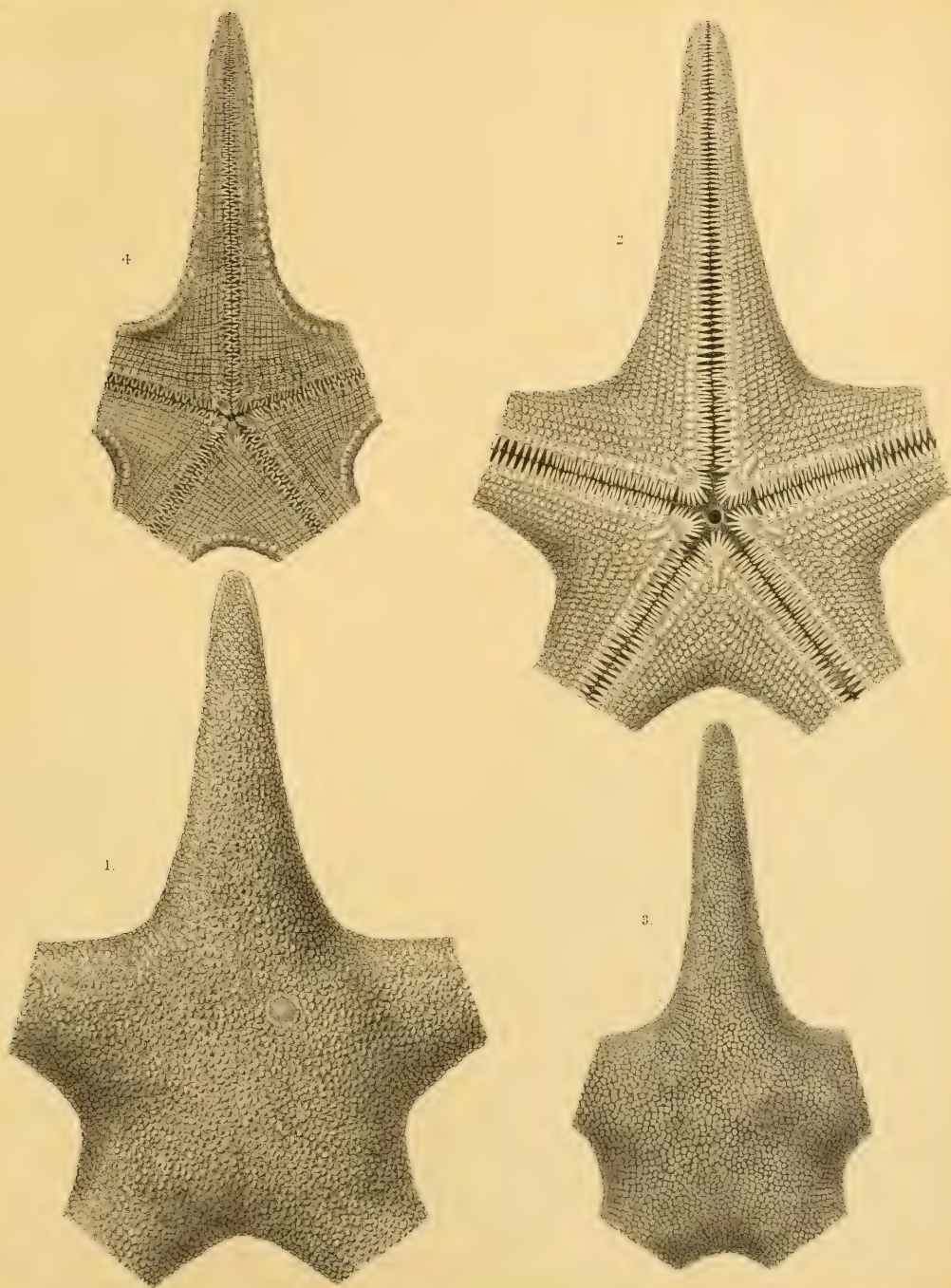
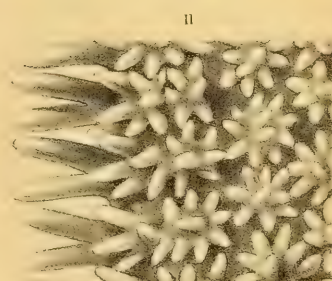
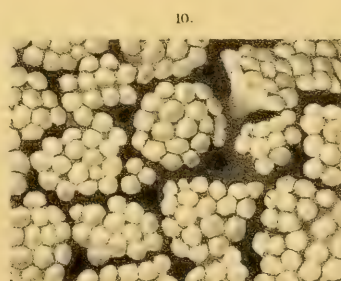
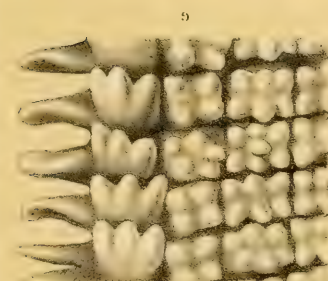
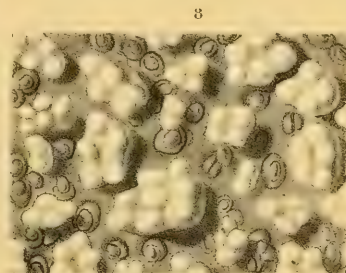
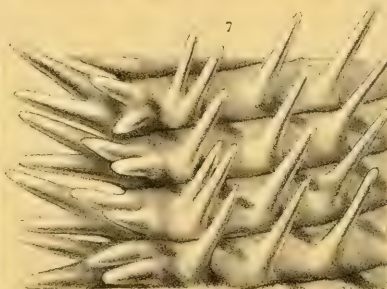
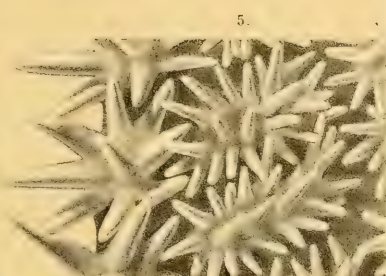
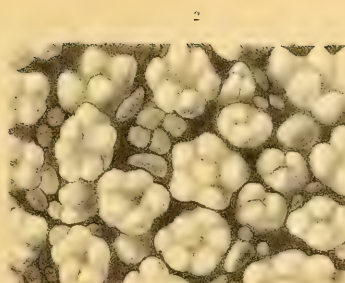


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[For macroscopic figures of this species see Pl. LXI. figs. 1, 2.]	
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[For macroscopic figures of this species see Pl. LXI. figs. 3, 4.]	



1. PERKMASTER FUSCUS, n. sp.
4-5. MIMASTER COGNATUS, n. sp.
8-9. CYCETHRA PINGUIS, n. sp.

2-3. CYCETHRA ELECTILIS, n. sp.
6-7. GANERIA FALKLANDICA, Gray.
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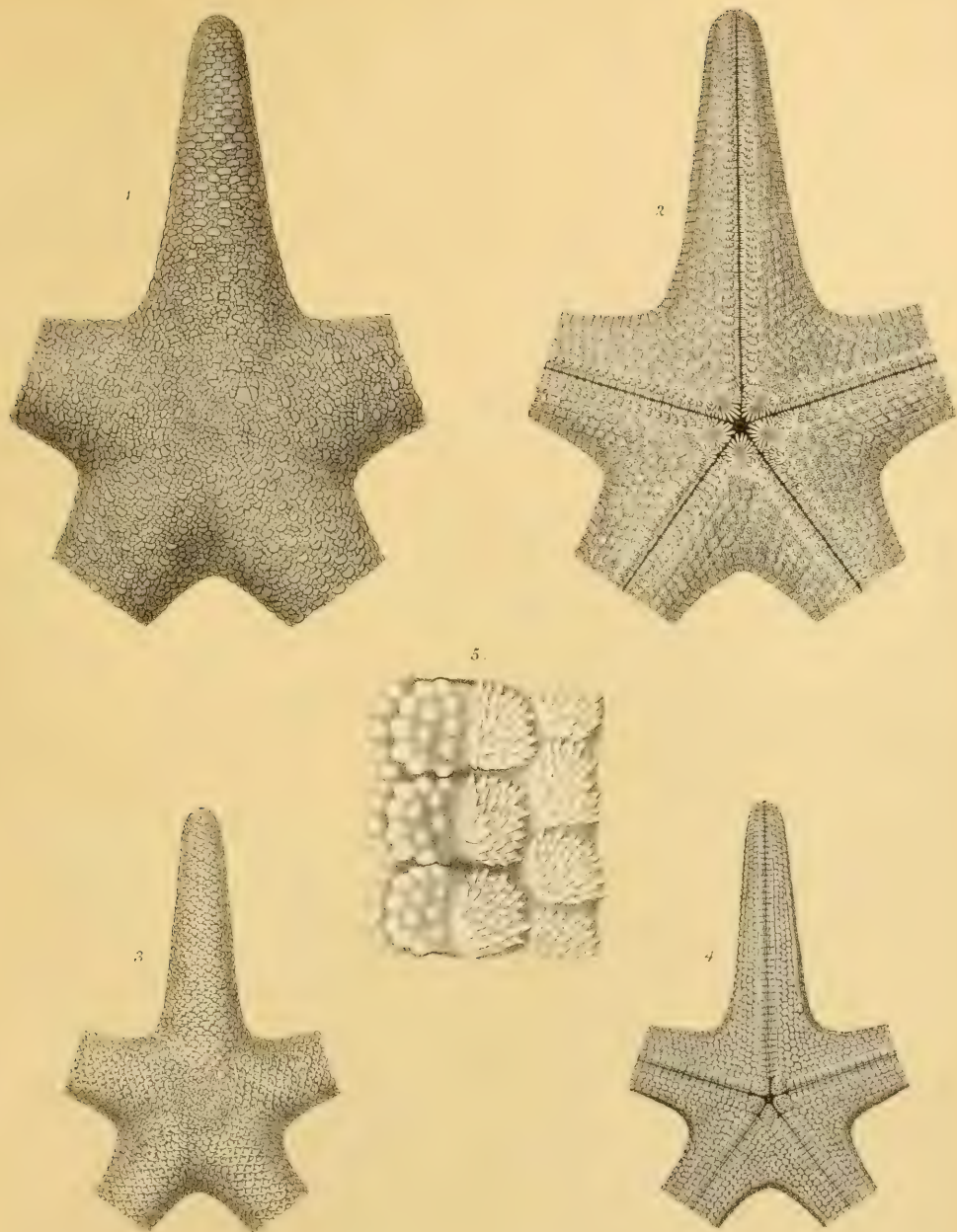
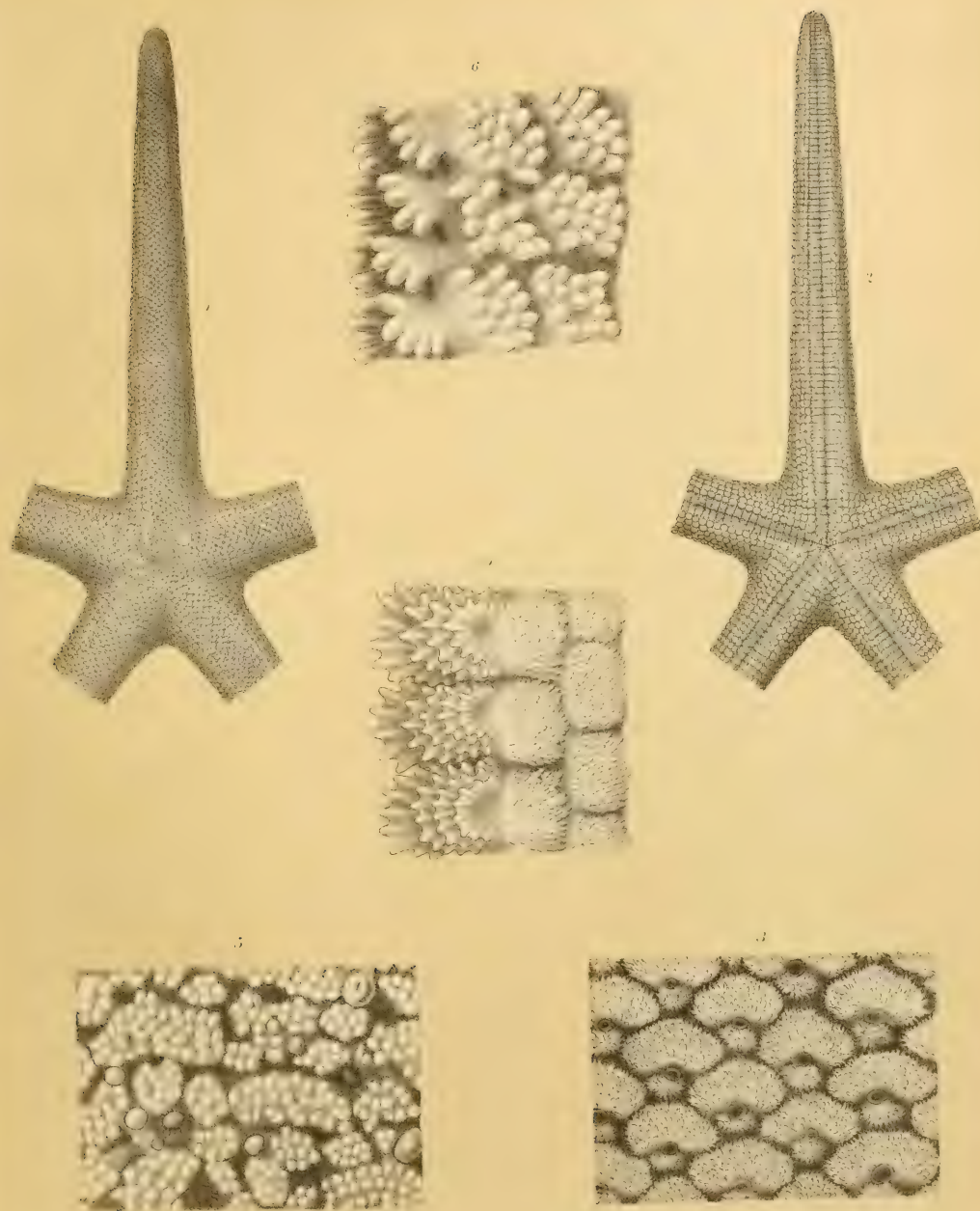


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Fig. 6. Adambulacral plates and adjacent portion of the actinal surface; magnified 10 diameters.	
[For macroscopic figures of this species see Pl. LXIII. figs. 1, 2.]	



W.H. Crowther del. Hollick lith.

Hanhart sculp.

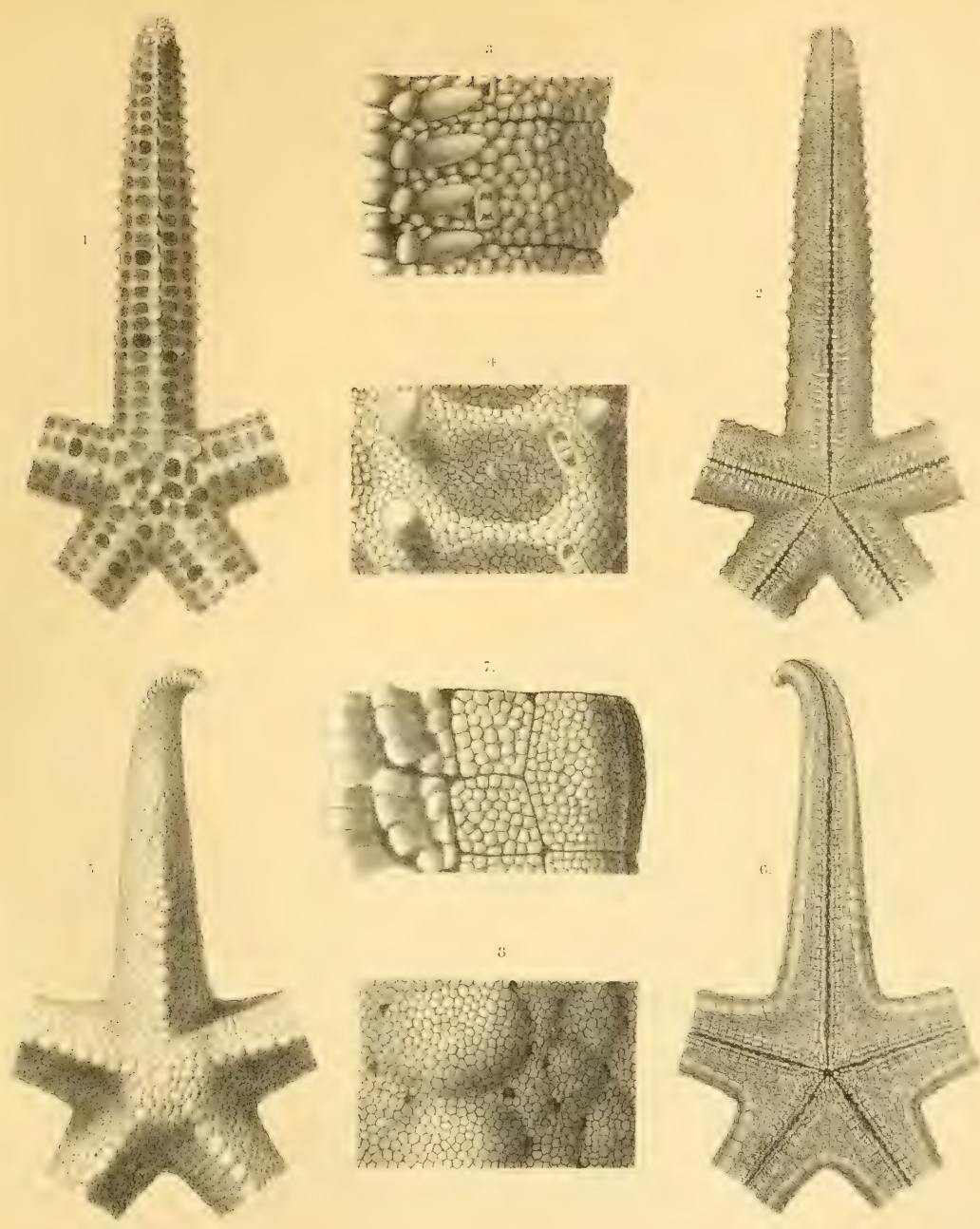
1-4. *NEPANTHIA MACULATA*, Gray.

5-6. *PATIRIA BELLULA*, n.sp.

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1-4. OPHIDIASTER TUBERIFER, n. sp. 5-8. NARCISSIA TRIGONARIA, n. sp.

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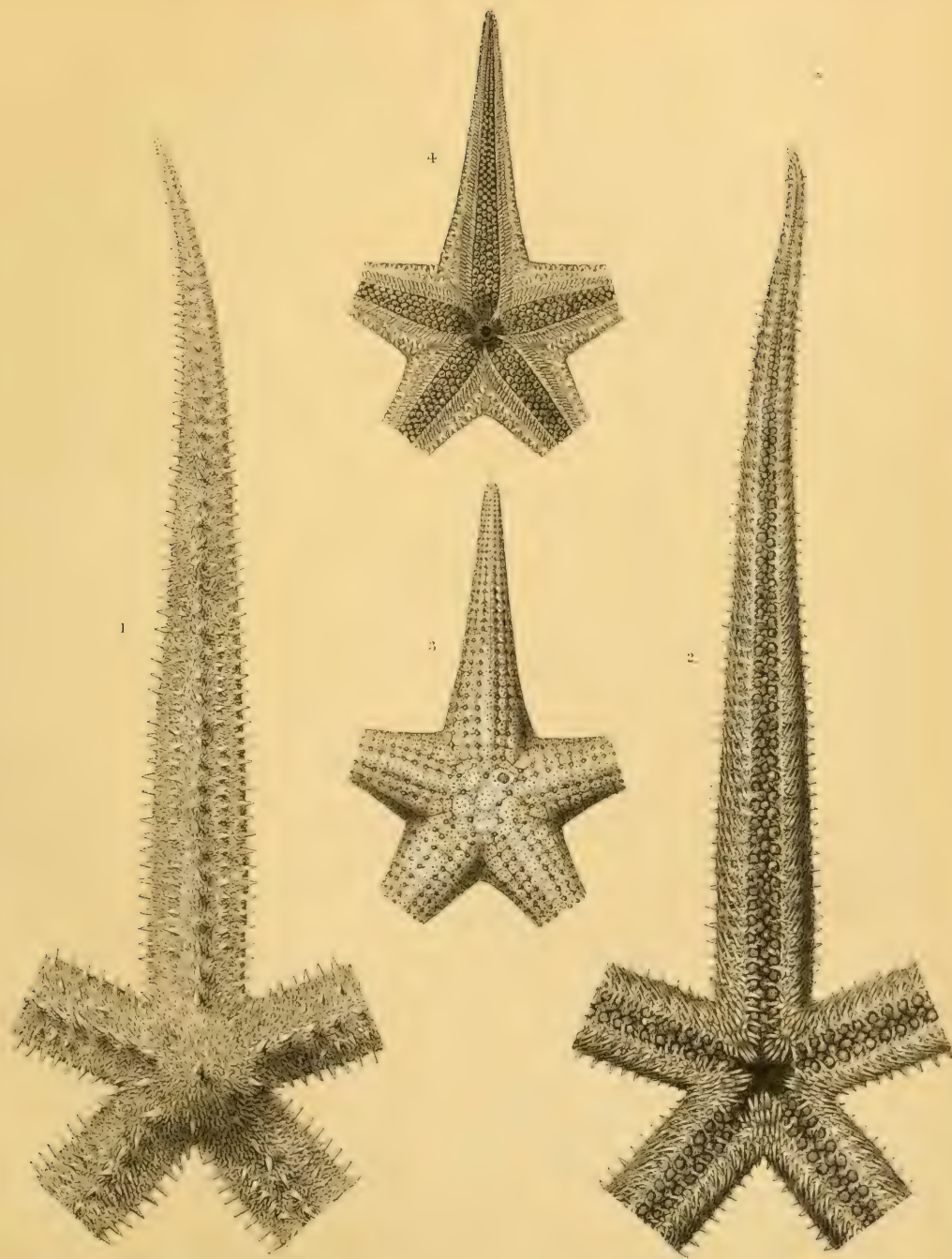
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Fig. 3. Abactinal aspect; magnified 2 diameters.

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[For magnified details of this species see Pl. LXVIII. figs. 9, 10.]



F.H. Michael del. et lith.

Min. Arn. Eros imp.

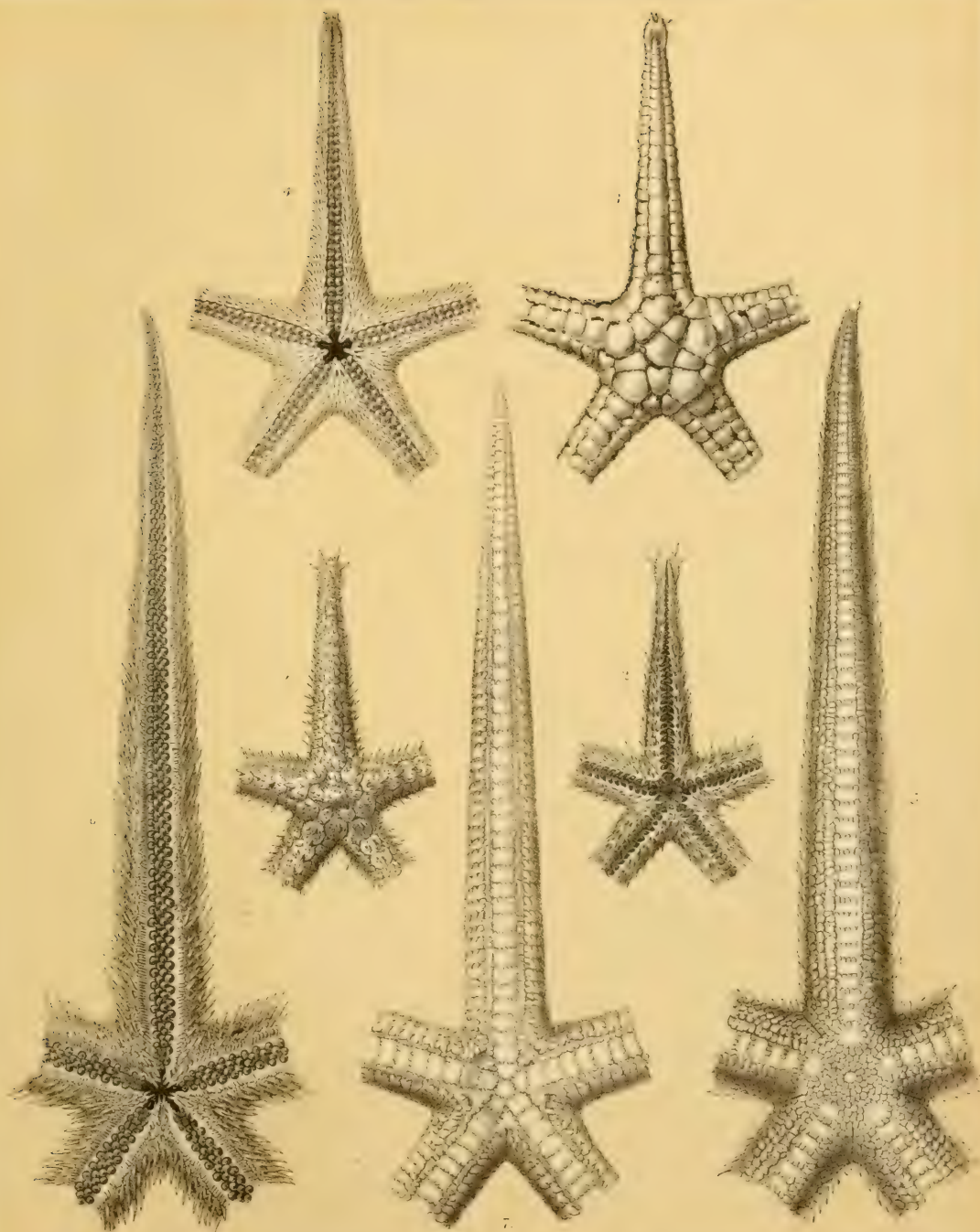
1-2. ZOROASTER FULGENS, Wyville Thomson.

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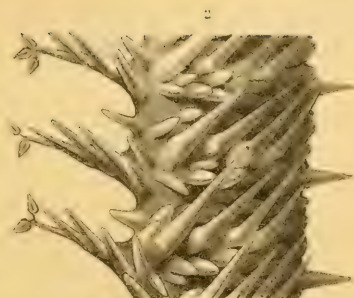
1-2. ZOROASTER TENUIS, n.sp
5-6. PHOLIDASTER SQUAMATUS, n.sp

3-4. CNEMIDASTER WYVILLII, n.sp
7. PHOLIDASTER DISTINCTUS, n.sp

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[For macroscopic figures of this species see Pl. LXVI. figs. 3, 4.]	



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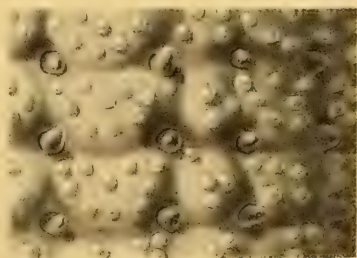
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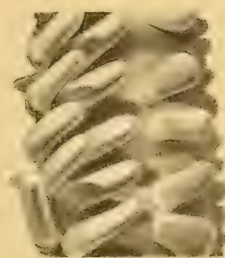
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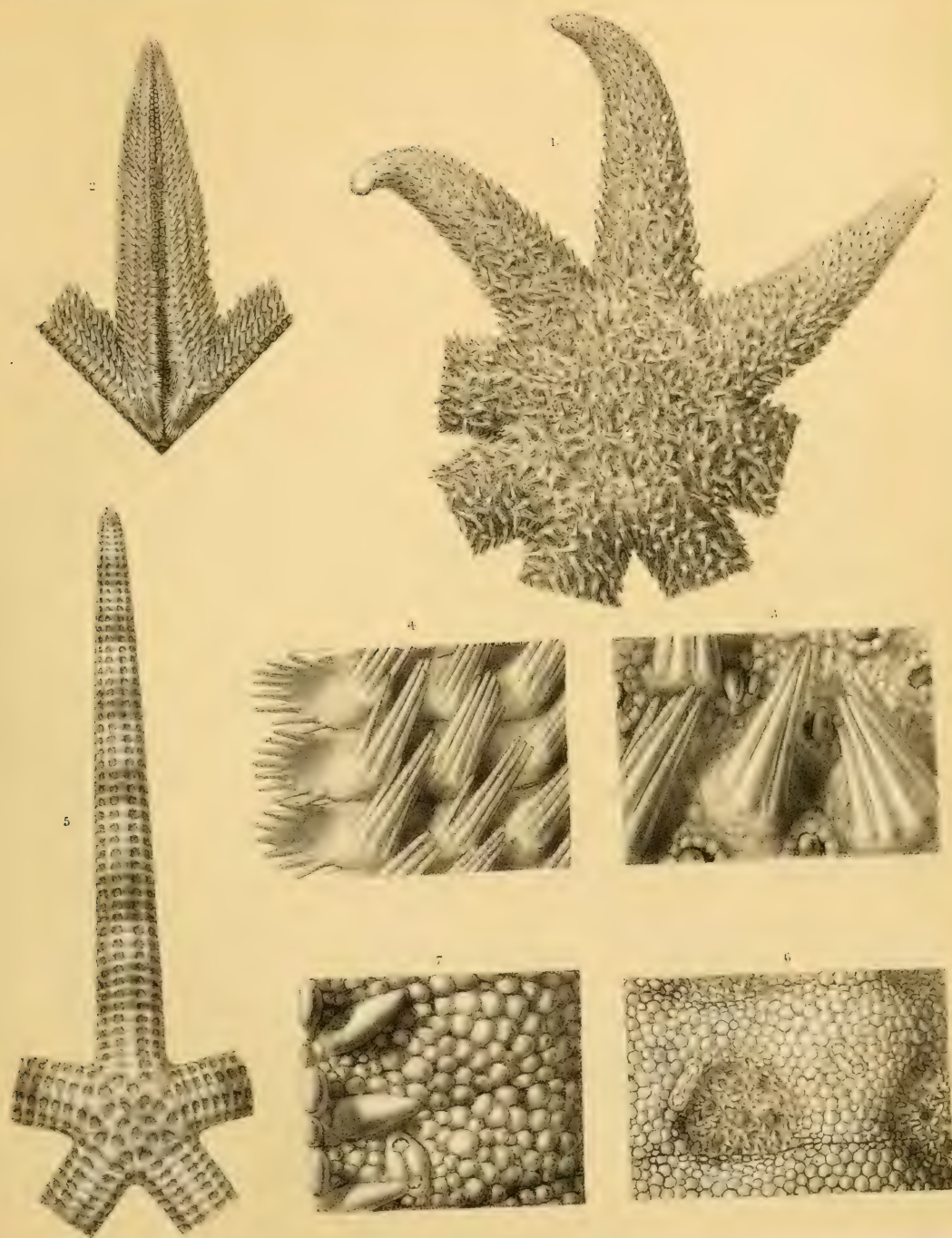


1-2. ZOROASTER FULGENS, Wyville Thomson. 3-4. CNEMIDASTER WYVILLII, n.sp.
5-6. PHOLIDASTER SQUAMATUS, n.sp. 7-8. ZOROASTER TENUIS, n.sp.
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Minuten. Dross. 1887.

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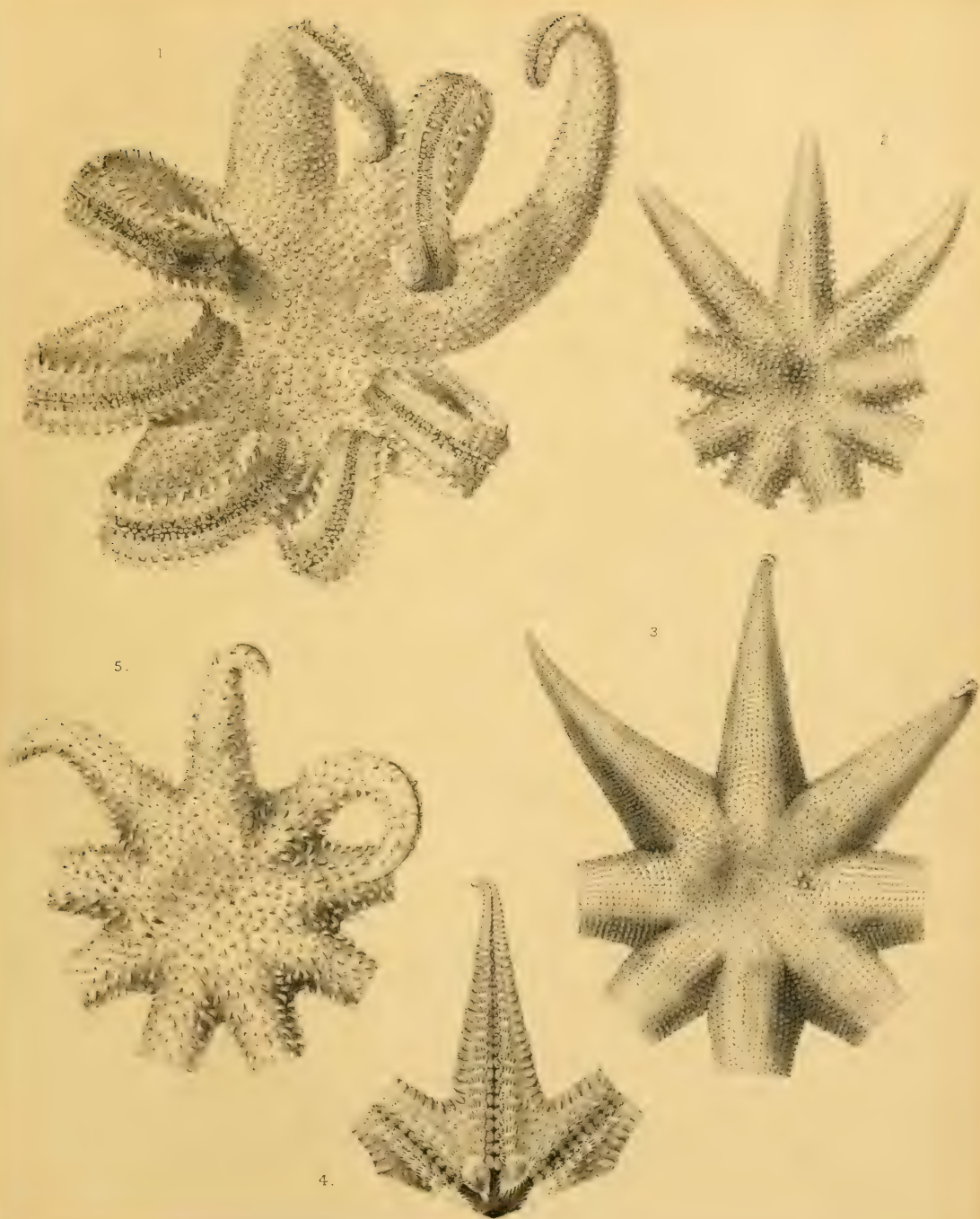
1-4. RHIPIDASTER VANNIPES, n. sp.

5-7. OPHIDIASTER HELICOSTICHUS, n. sp.

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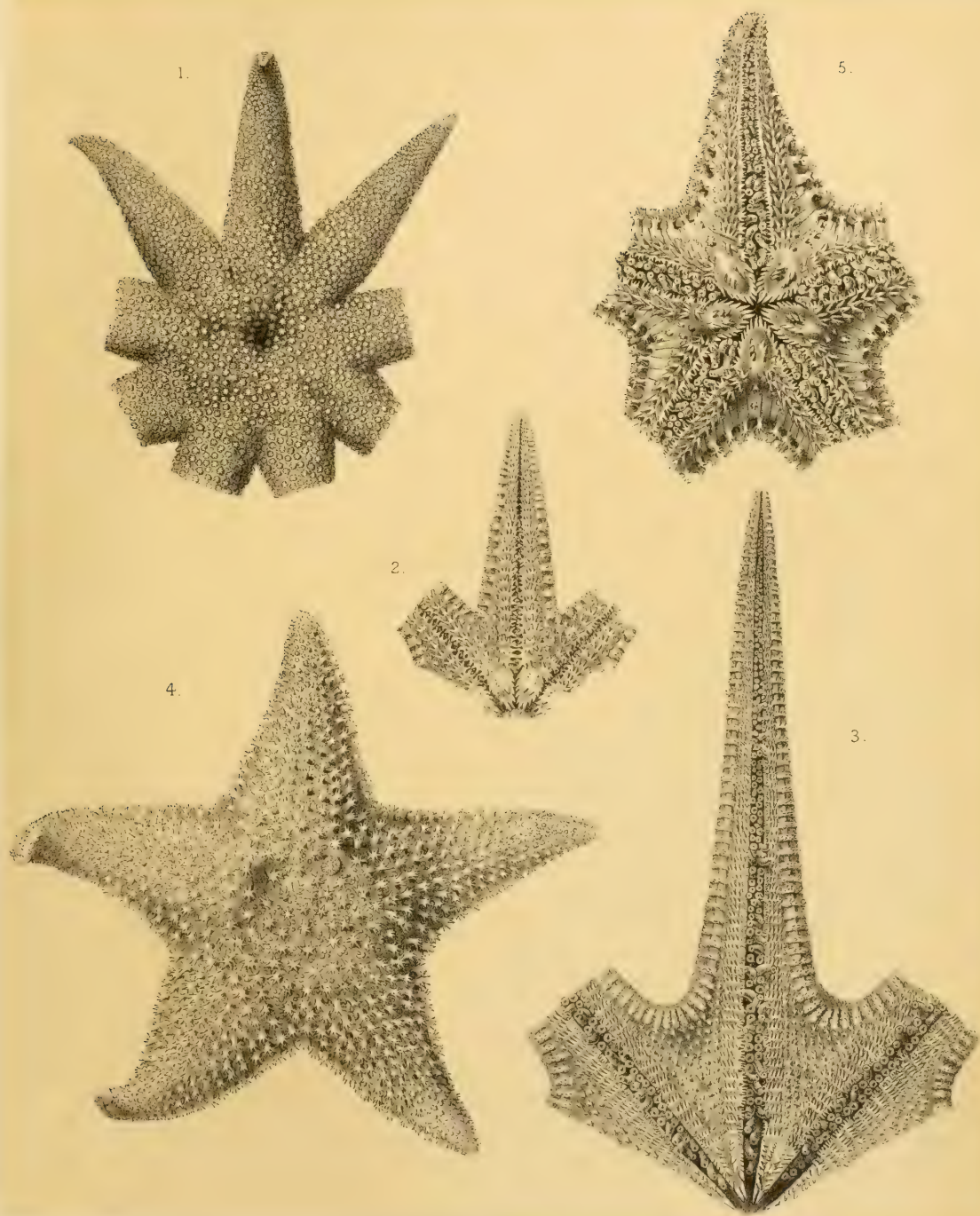
1. SOLASTER REGULARIS, n. sp.
3-4. SOLASTER TORULATUS, n. sp.

2. SOLASTER SUBARCUATUS, n. sp.
5. CROSSASTER PENICILLATUS, n. sp.

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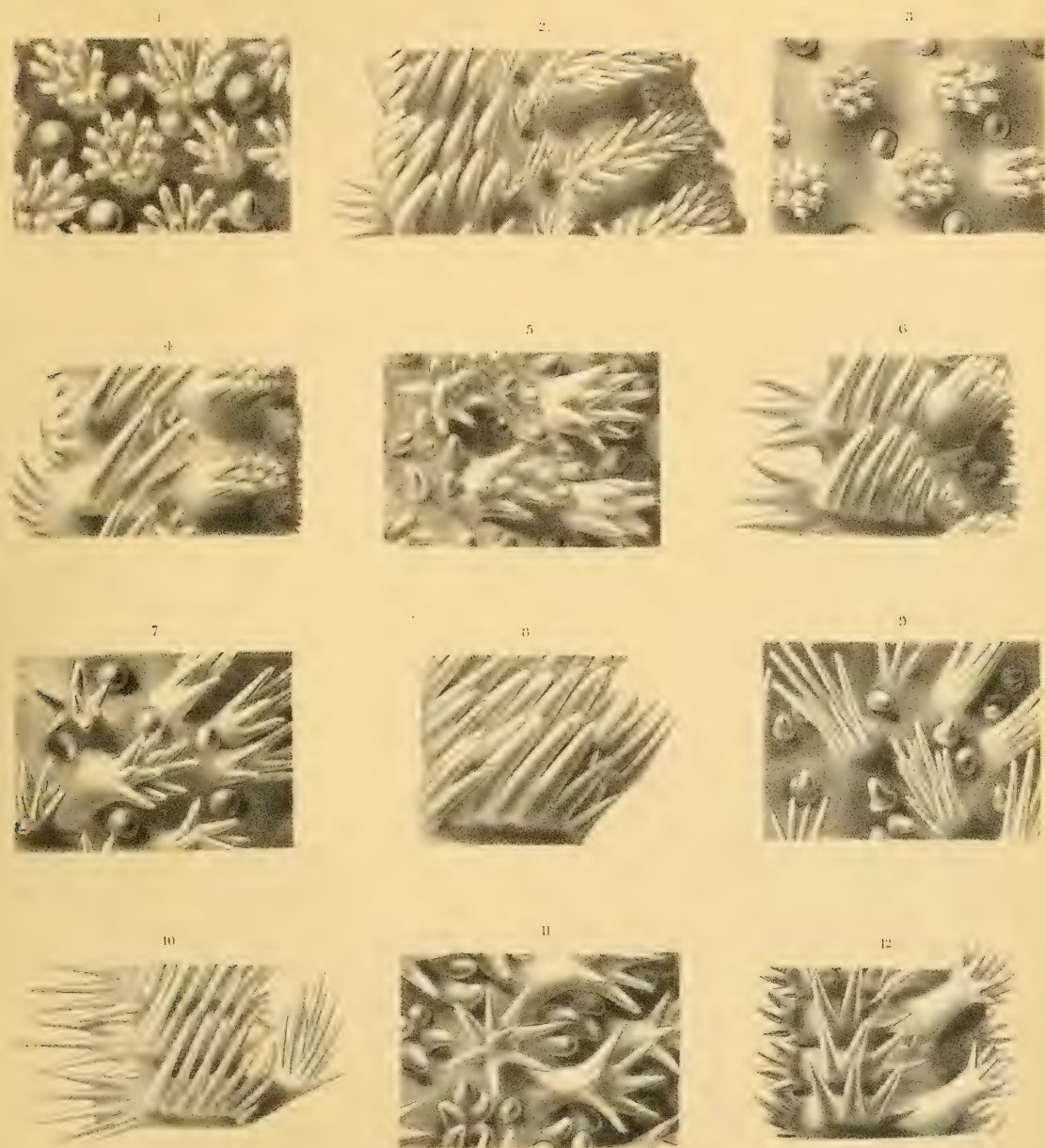
1-3. SOLASTER PAXILLATUS, n. sp.

4-5. LOPHASTER STELLANS, n. sp.

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[For macroscopic figures of this species see Pl. LXXI. figs. 4, 5.]	



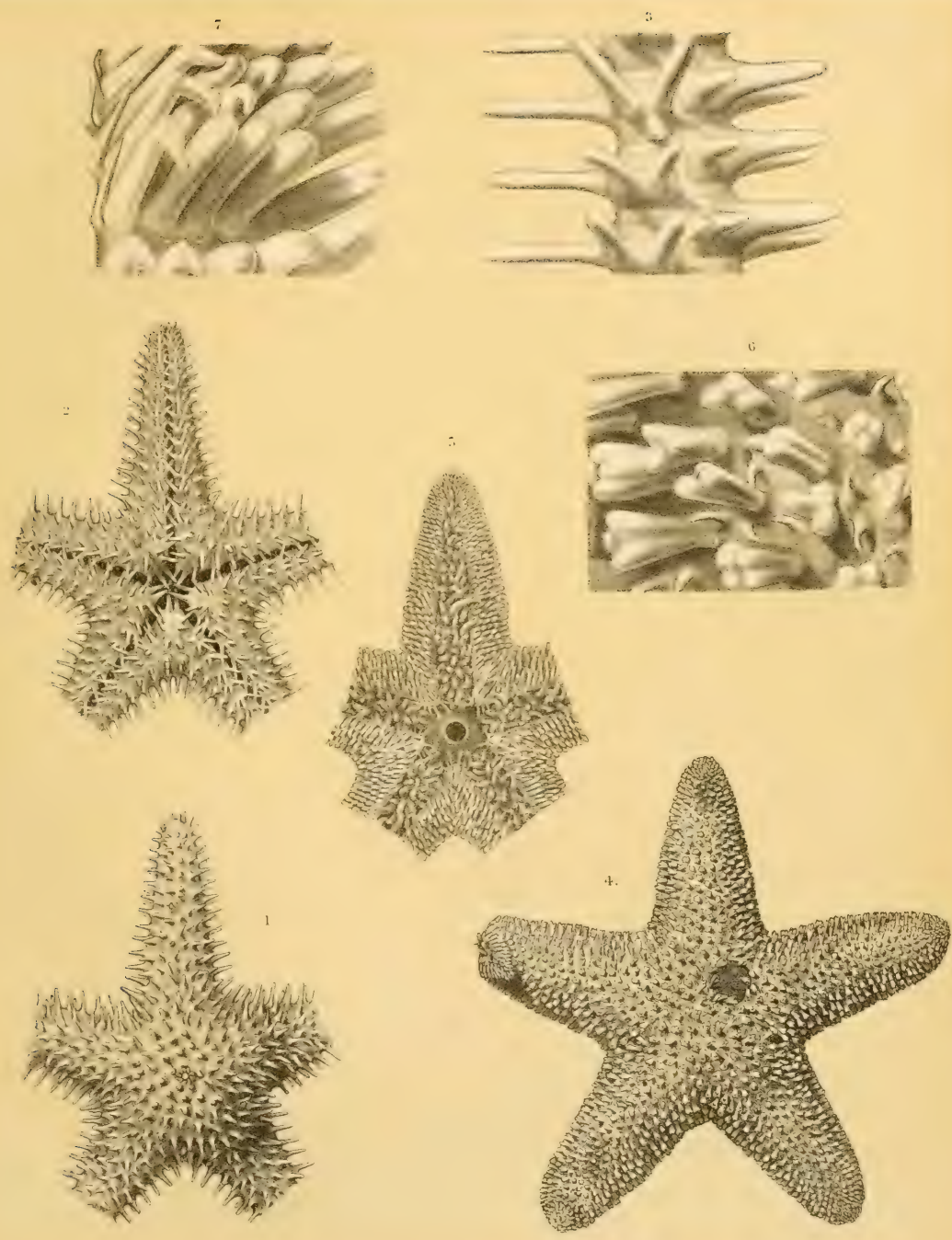
1-2. SOLASTER PAXILLATUS, n. sp.
 5-6. SOLASTER REGULARIS, n. sp.
 9-10. CROSSASTER PENICILLATUS, n. sp.

3-4. SOLASTER TORULATUS, n. sp.
 7-8. SOLASTER SUBARCUATUS, n. sp.
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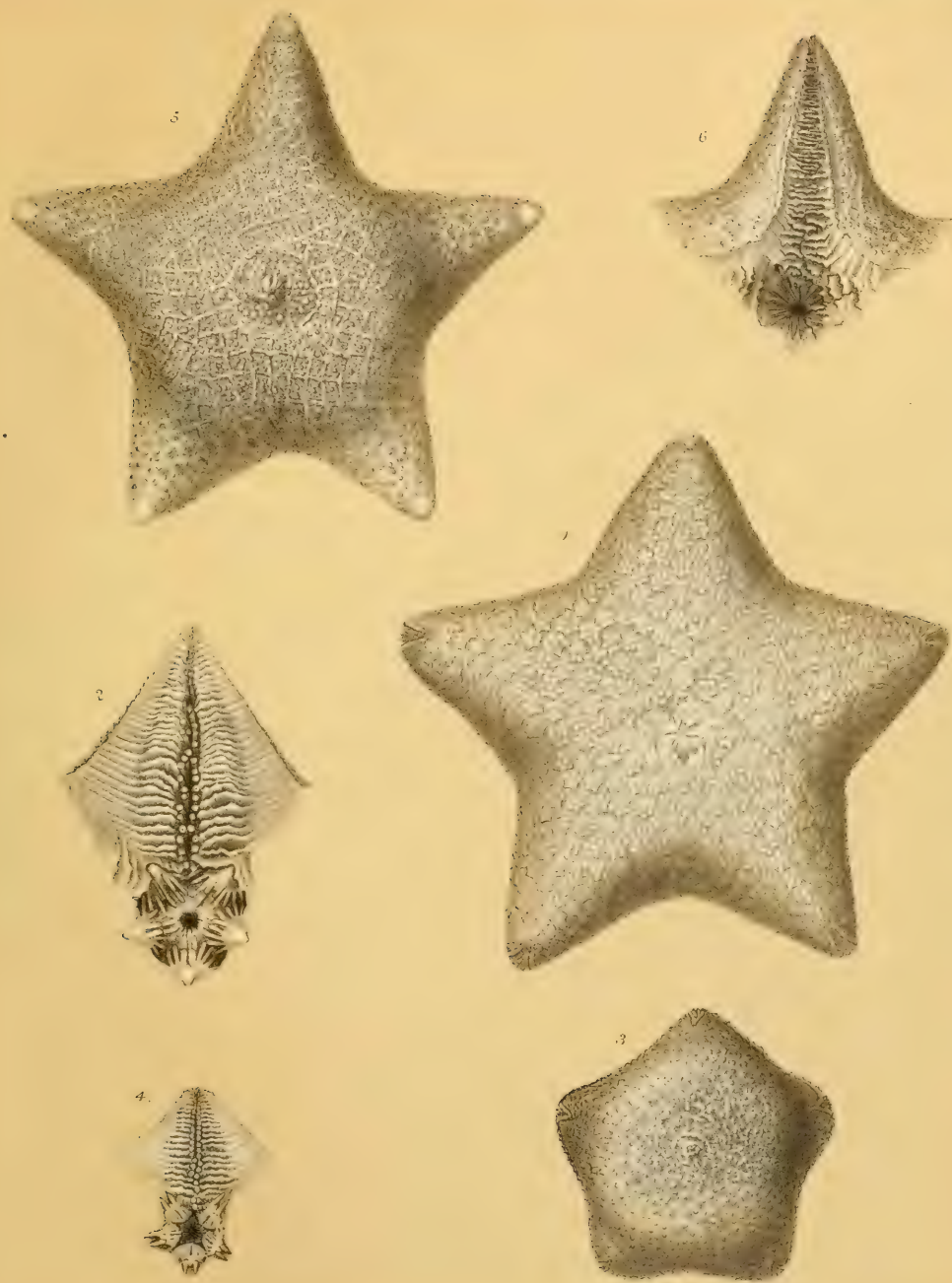
Maximilian Bros. imp.

1-3. CHITONASTER CATAPHRACTUS, n. sp. 4-7. PERIBOLASTER FOLLICULATUS, n. sp.

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5-6. RETASTER GIBBER, n. sp.

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[For magnified details of this species see Pl. LXXVII. figs. 5, 6.]	

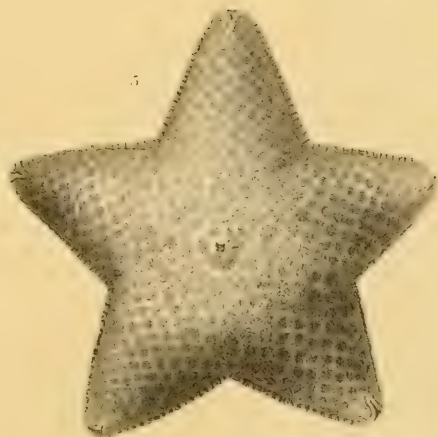
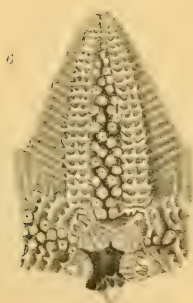
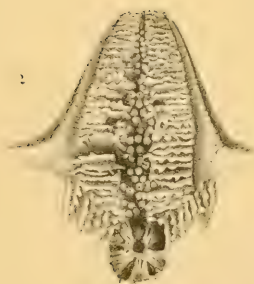


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PLATE LXXVI.

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Fig. 1. Abactinal aspect ; natural size.

Fig. 2. Actinal aspect ; natural size.

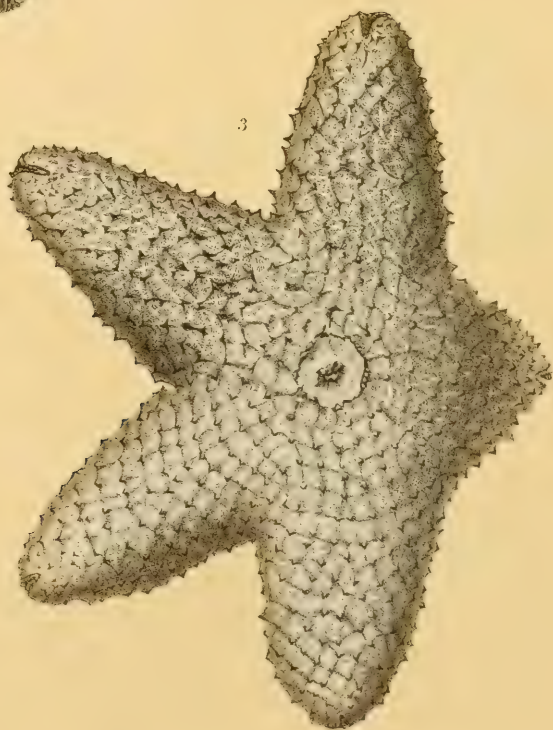
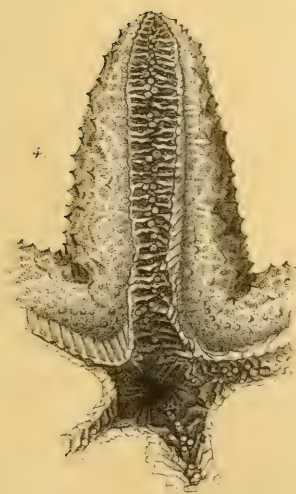
[For magnified details of this species see Pl. LXXVII. figs. 9, 10.]

Figs. 3, 4. RETASTER INSIGNIS, n. sp.	482
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Fig. 3. Abactinal aspect ; natural size.

Fig. 4. Actinal aspect ; natural size.

[For magnified details of this species see Pl. LXXVII. figs. 11, 12.]



1-2. *RETASTER VERRUCOSUS*, n. sp.

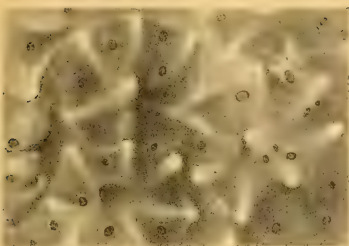
3-4. *RETASTER INSIGNIS*, n. sp.

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[For macroscopic figures of this species see Pl. LXXVI. figs. 3, 4.]	

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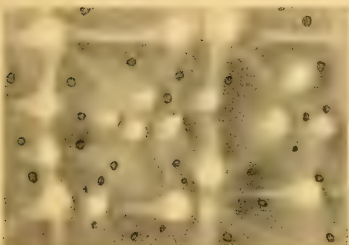
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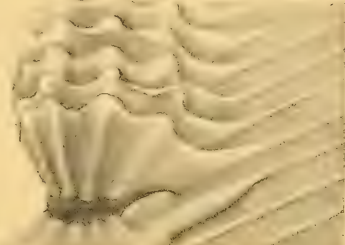
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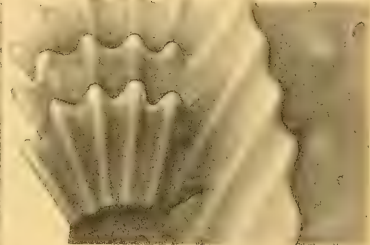
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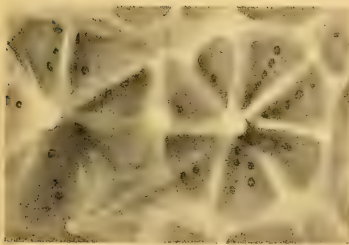
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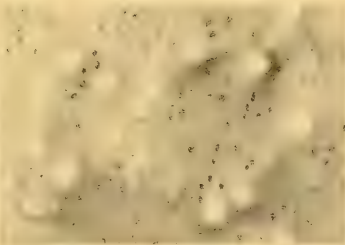
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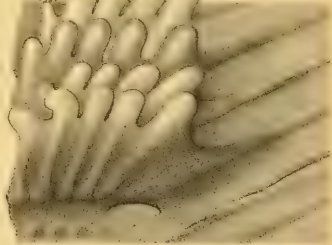
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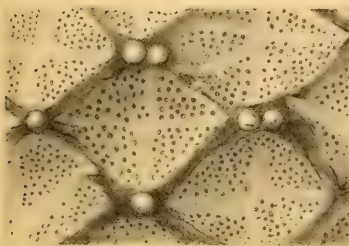
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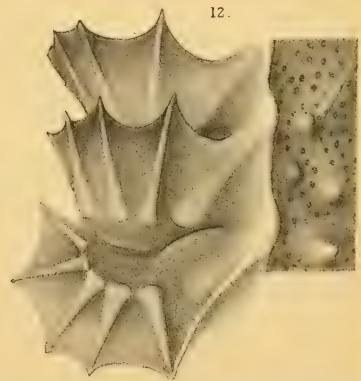


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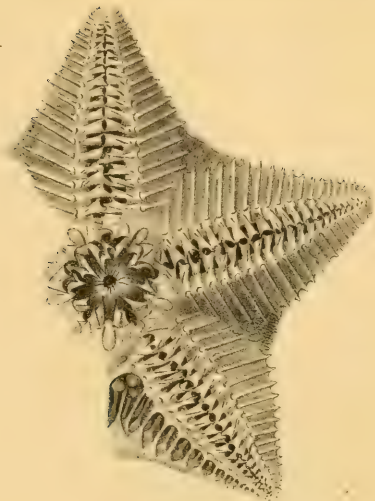
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[For magnified details of this species see Pl. LXXIX. figs. 7-9.]	

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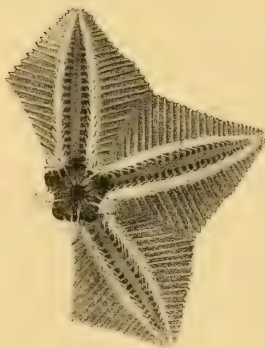
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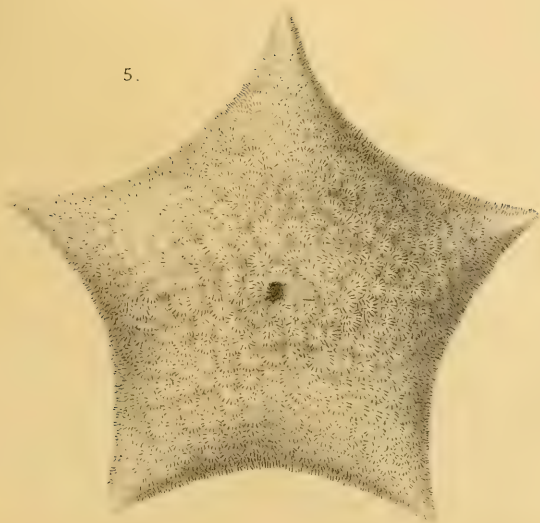
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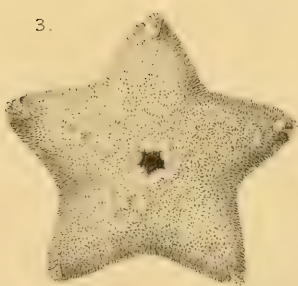
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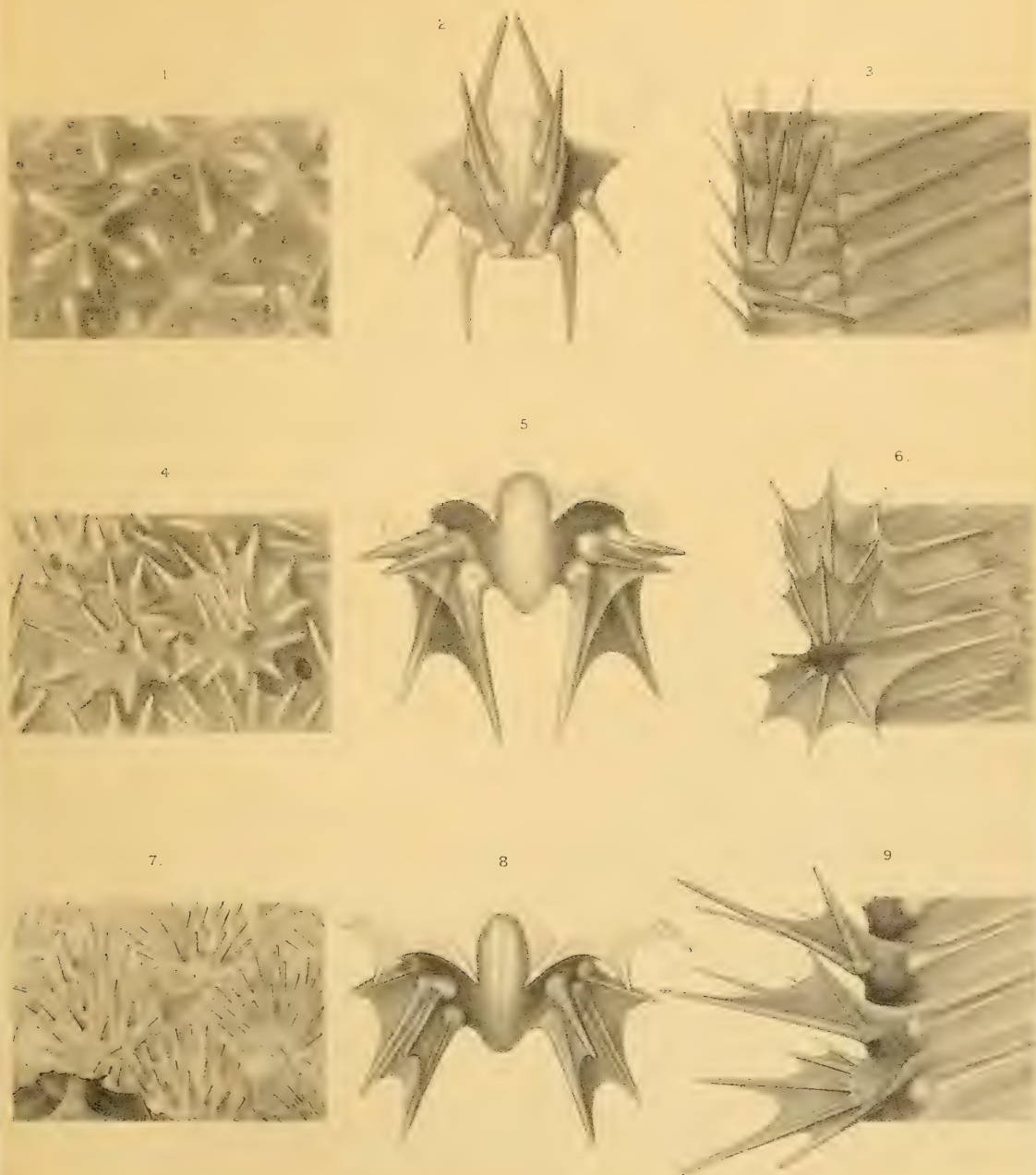
J. H. Michael del.

1-2. CALYPTRASTER COA, n. sp. 3-4. MARSIPASTER HIRSUTUS, n. sp.
5-6. MARSIPASTER SPINOSISSIMUS, n. sp.

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[For macroscopic figures of this species see Pl. LXXXVIII. figs. 3, 4.]	
Figs. 7-9. <i>MARSIPASTER SPINOSISSIMUS</i> , n. sp.	485
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Fig. 9. Adambulacral plates and adjacent portion of the actinal surface ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. LXXXVIII. figs. 5, 6.]	



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1-3. CALYPTRASTER COA, n sp

4-6. MARSIPASTER HIRSUTUS, n sp

7-9. MARSIPASTER SPINOSISSIMUS, n sp

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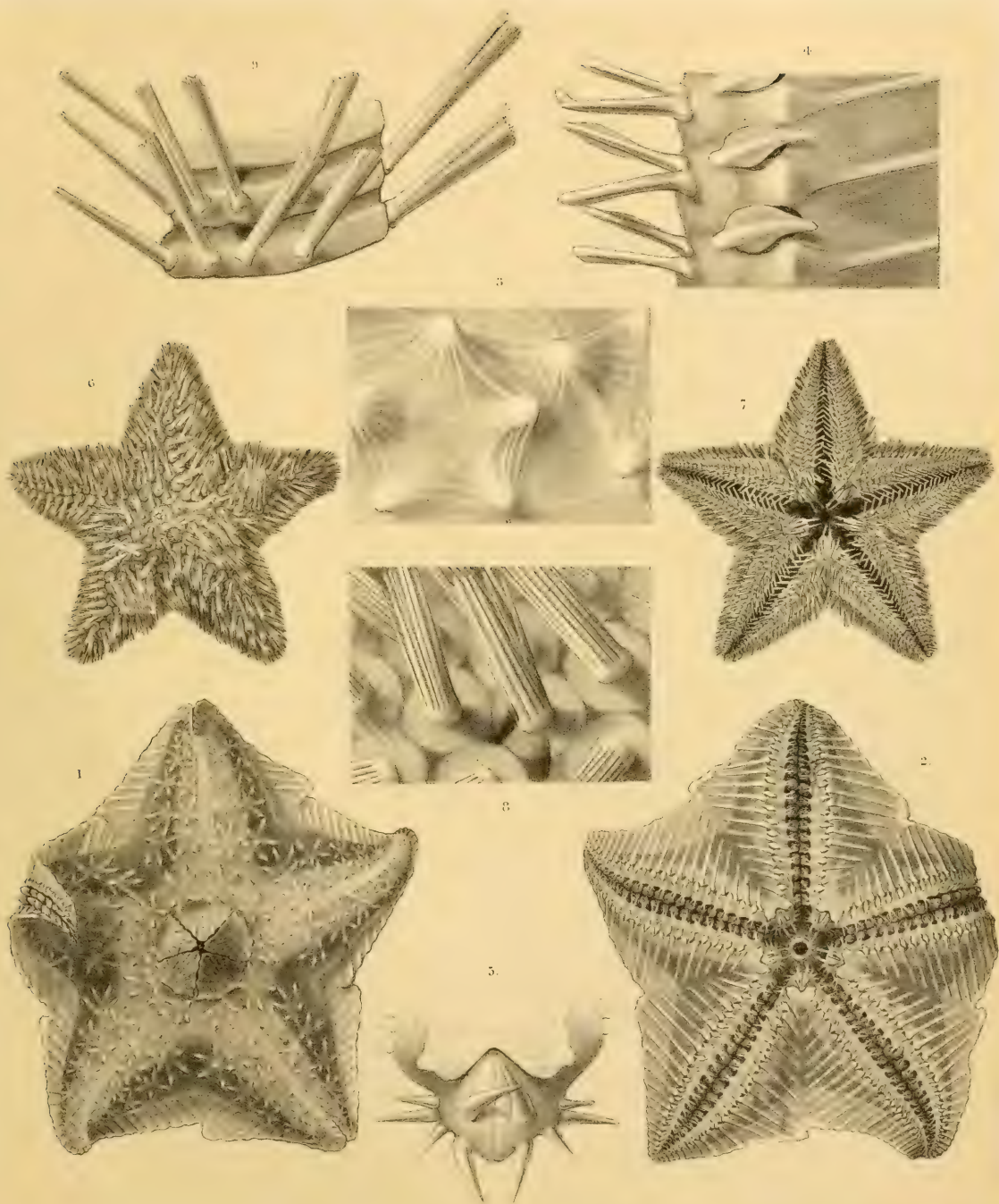
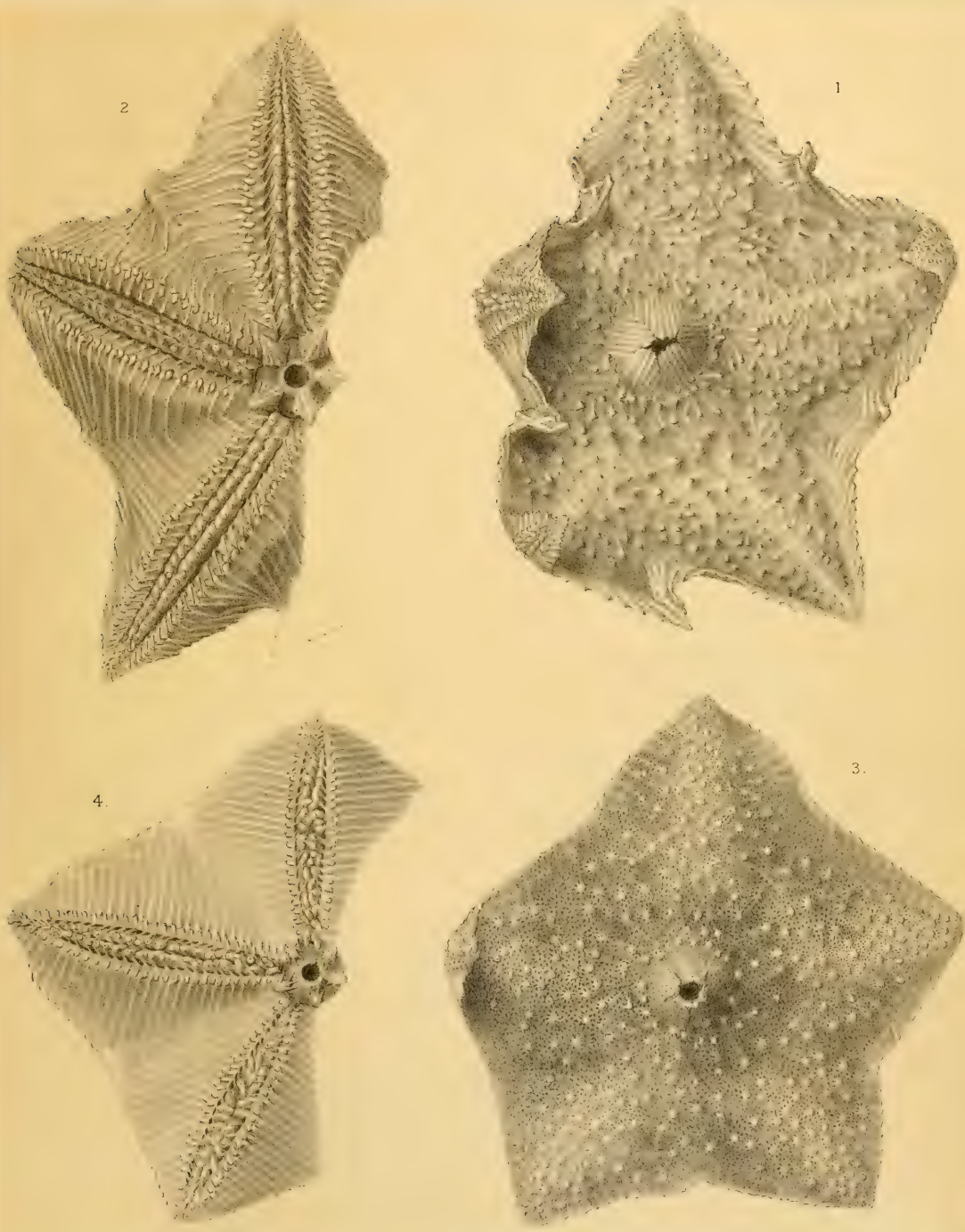


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Fig. 4. Actinal aspect; magnified 3 diameters.	
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Photo. Lab. Edin.

1-2. HYMENASTER PERGAMENTACEUS, n. sp.

3-4. HYMENASTER FORMOSUS, n. sp.

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PLATE LXXXII.

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Fig. 1. Abactinal aspect; magnified 3 diameters.

Fig. 2. Actinal aspect; magnified 3 diameters.

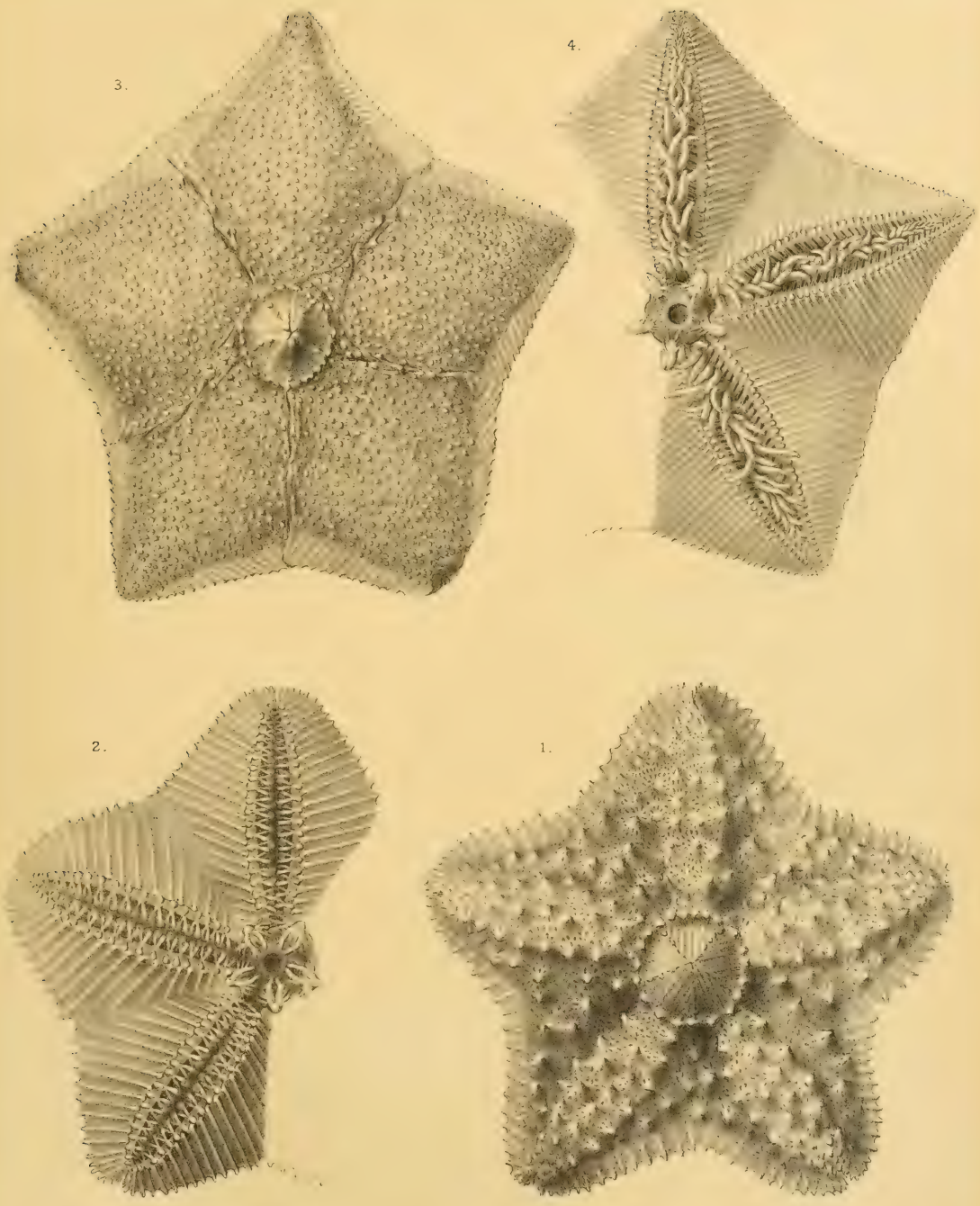
. [For magnified details of this species see Pl. LXXXIII. figs. 7-9.]

Figs. 3, 4. HYMENASTER POROSISSIMUS, n. sp. . . .	515
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Fig. 3. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 4. Actinal aspect; magnified $1\frac{1}{2}$ diameters.

[For magnified details of this species see Pl. LXXXIII. figs. 10-12.]



F.H. Michael del.

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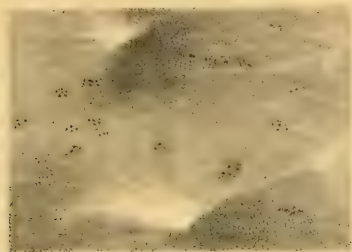
1-2. HYMENASTER ECHINULATUS, n. sp. 3-4. HYMENASTER POROSISSIMUS, n. sp.

PLATE LXXXIII.

PLATE LXXXIII.

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Fig. 1. A portion of the supradorsal membrane ; magnified 10 diameters.	
Fig. 2. Mouth-plates ; magnified.	
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[For macroscopic figures of this species see Pl. LXXXI. figs. 1, 2.]	
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Fig. 4. A portion of the supradorsal membrane ; magnified 16 diameters.	
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Fig. 7. A portion of the supradorsal membrane ; magnified 15 diameters.	
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[For macroscopic figures of this species see Pl. LXXXII. figs. 1, 2.]	
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Fig. 10. A portion of the supradorsal membrane ; magnified 10 diameters.	
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[For macroscopic figures of this species see Pl. LXXXII. figs. 3, 4.]	

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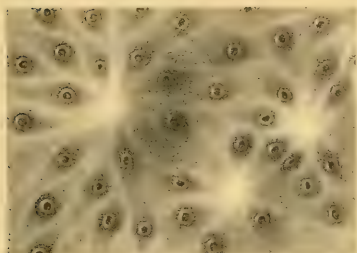
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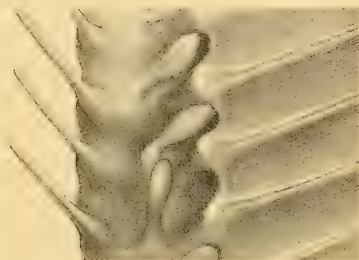
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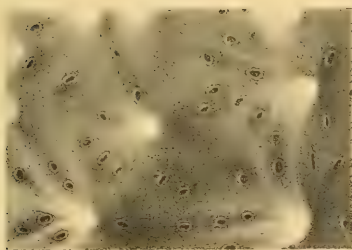
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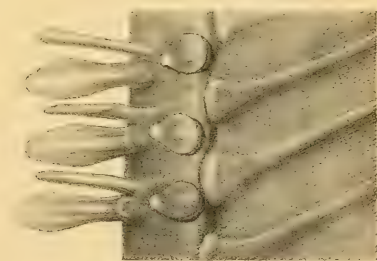
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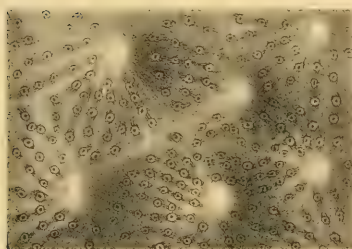
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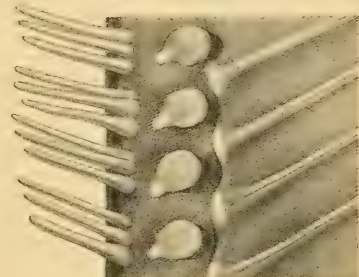
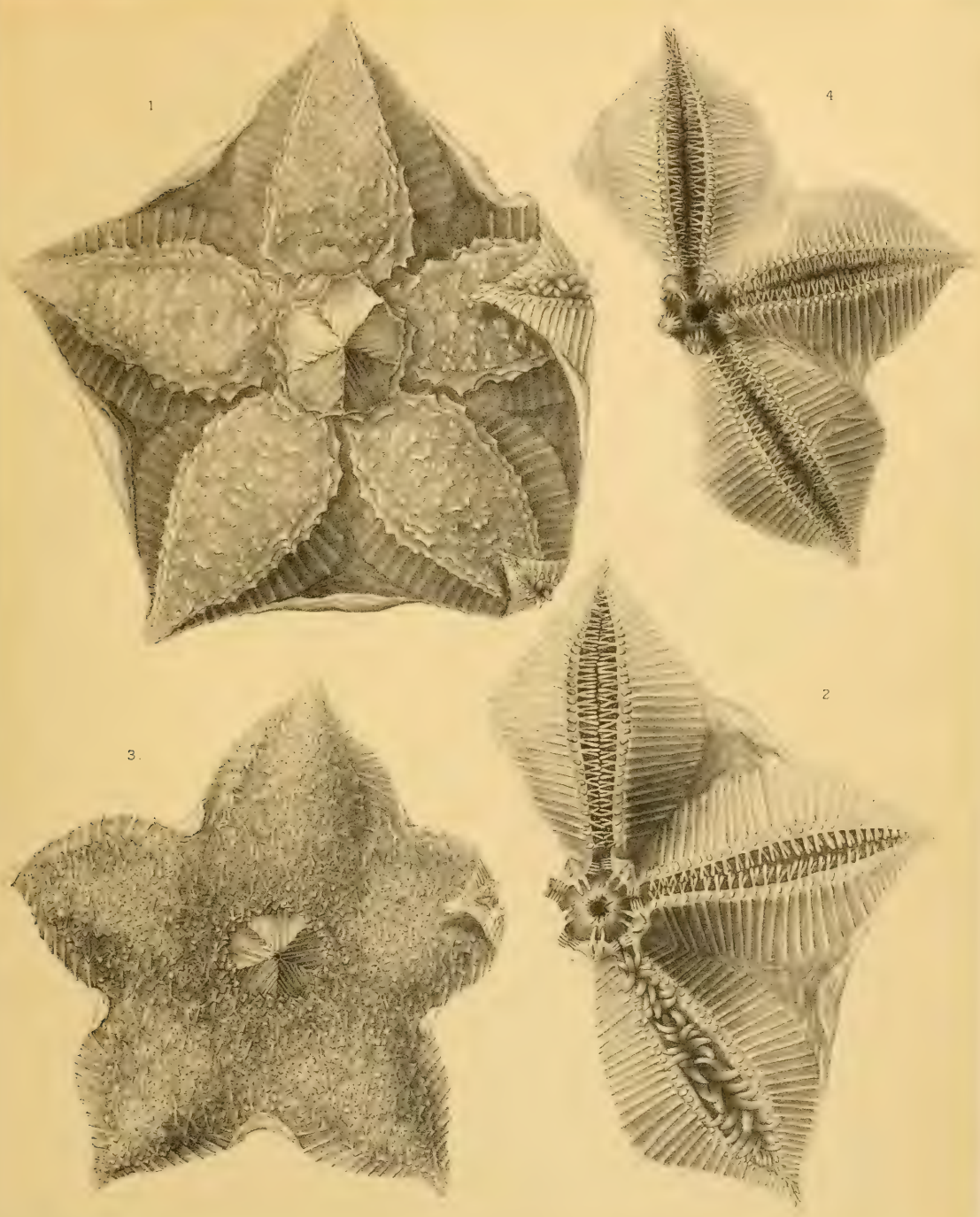


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PLATE LXXXIV.

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Figs. 1, 2. HYMENASTER GLAUCUS, n. sp.	505
Fig. 1. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 2. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. LXXXVI. figs. 4-6.]	
Figs. 3, 4. HYMENASTER VICARIUS, n. sp.	507
Fig. 3. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 4. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. LXXXVI. figs. 1-3.]	



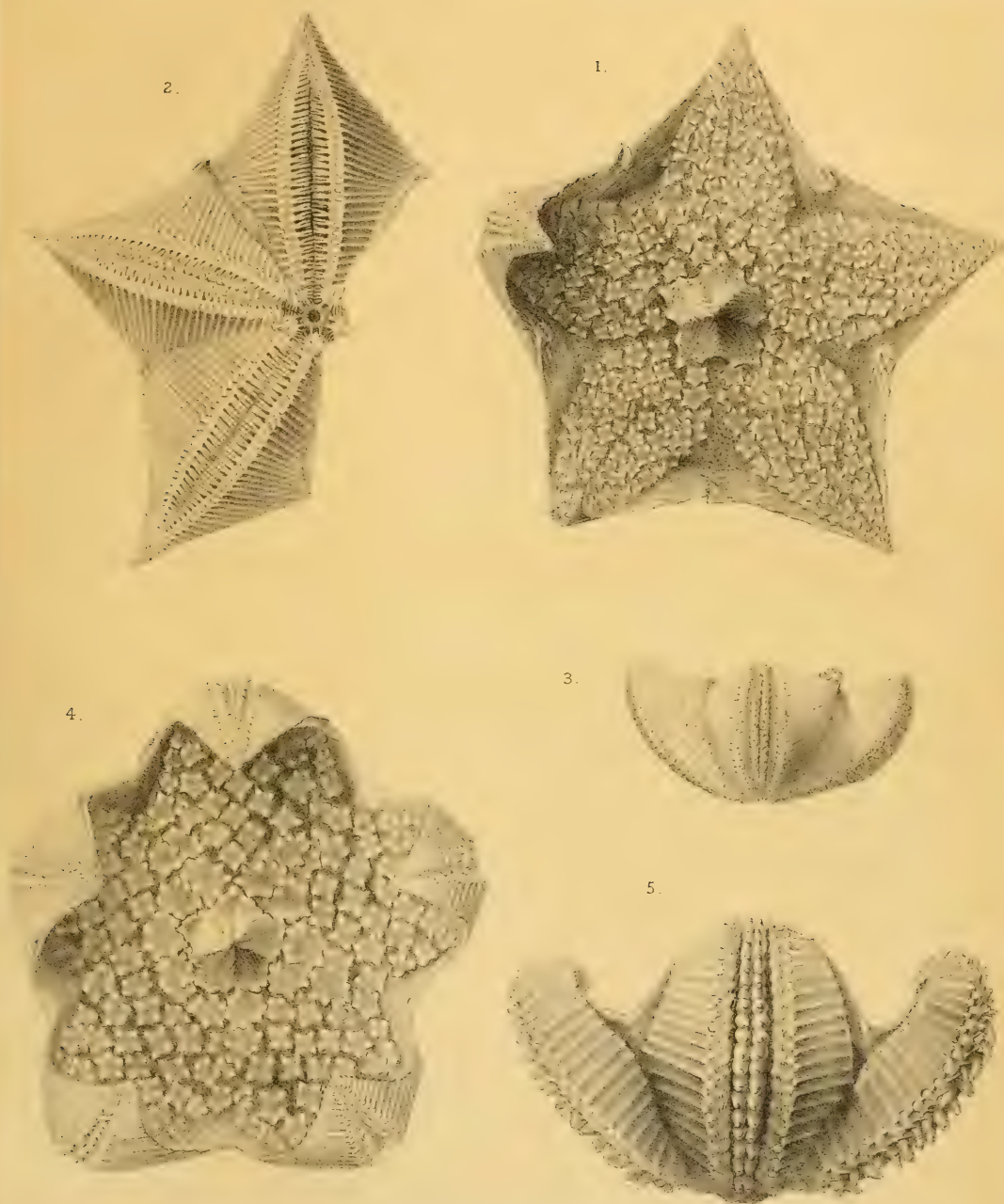
1-2. HYMENASTER GLAUCUS, n. sp.

3-4. HYMENASTER VICARIUS, n. sp.

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[For magnified details of this species see Pl. LXXXVI. figs. 10-12.]	



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F. Rothlieb sculp.

1-3. HYMENASTER SACCULATUS, n. sp.

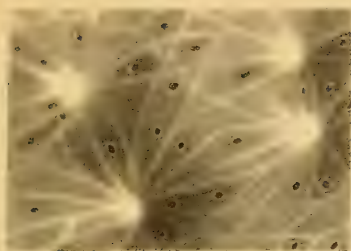
4-5. HYMENASTER CÆLATUS, n. sp.

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Fig. 3. Adambulacral plates and adjacent portion of the actinal surface ; magnified 8 diameters.	
[For macroscopic figures of this species see Pl. LXXXIV. figs. 3, 4.]	
Figs. 4-6. <i>HYMENASTER GLAUCUS</i> , n. sp.	505
Fig. 4. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 5. Mouth-plates ; magnified.	
Fig. 6. Adambulacral plates and adjacent portion of the actinal surface ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. LXXXIV. figs. 1, 2.]	
Figs. 7-9. <i>HYMENASTER SACCULATUS</i> , n. sp.	501
Fig. 7. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 8. Mouth-plates ; magnified.	
Fig. 9. Adambulacral plates and adjacent portion of the actinal surface ; magnified 8 diameters.	
[For macroscopic figures of this species see Pl. LXXXV. figs. 1-3.]	
Figs. 10-12. <i>HYMENASTER CÆLATUS</i> , n. sp.	509
Fig. 10. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 11. Mouth-plates ; magnified.	
Fig. 12. Adambulacral plates and adjacent portion of the actinal surface ; magnified 8 diameters.	
[For macroscopic figures of this species see Pl. LXXXV. figs. 4, 5.]	

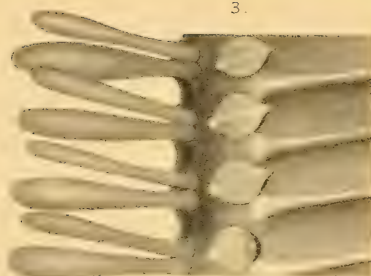
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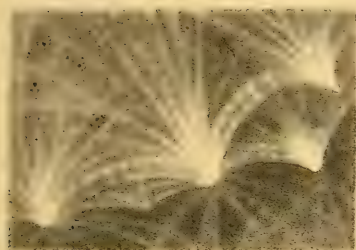
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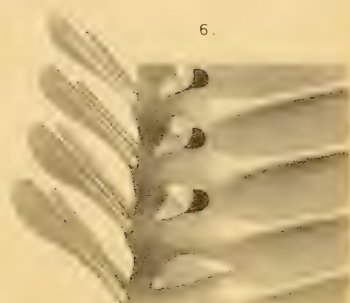
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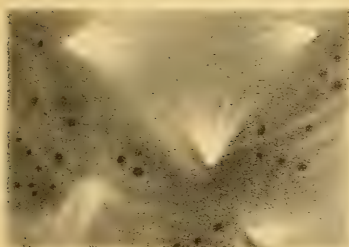
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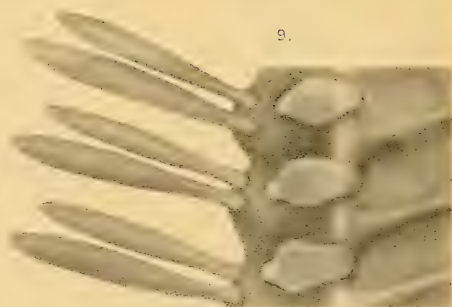
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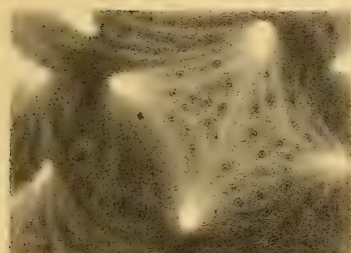
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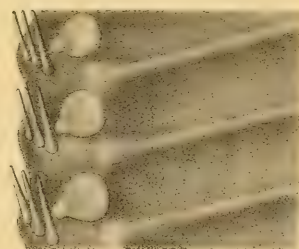
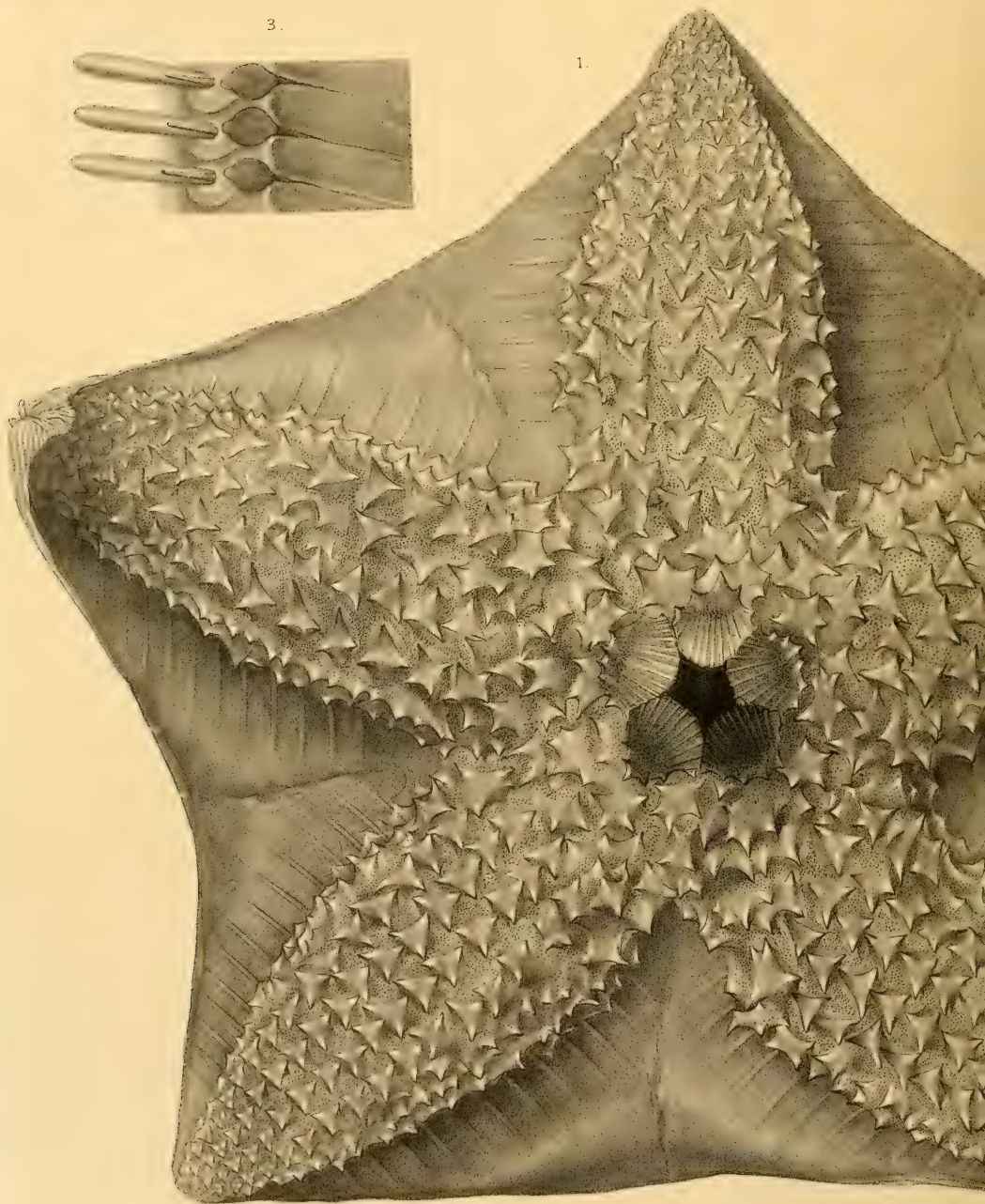


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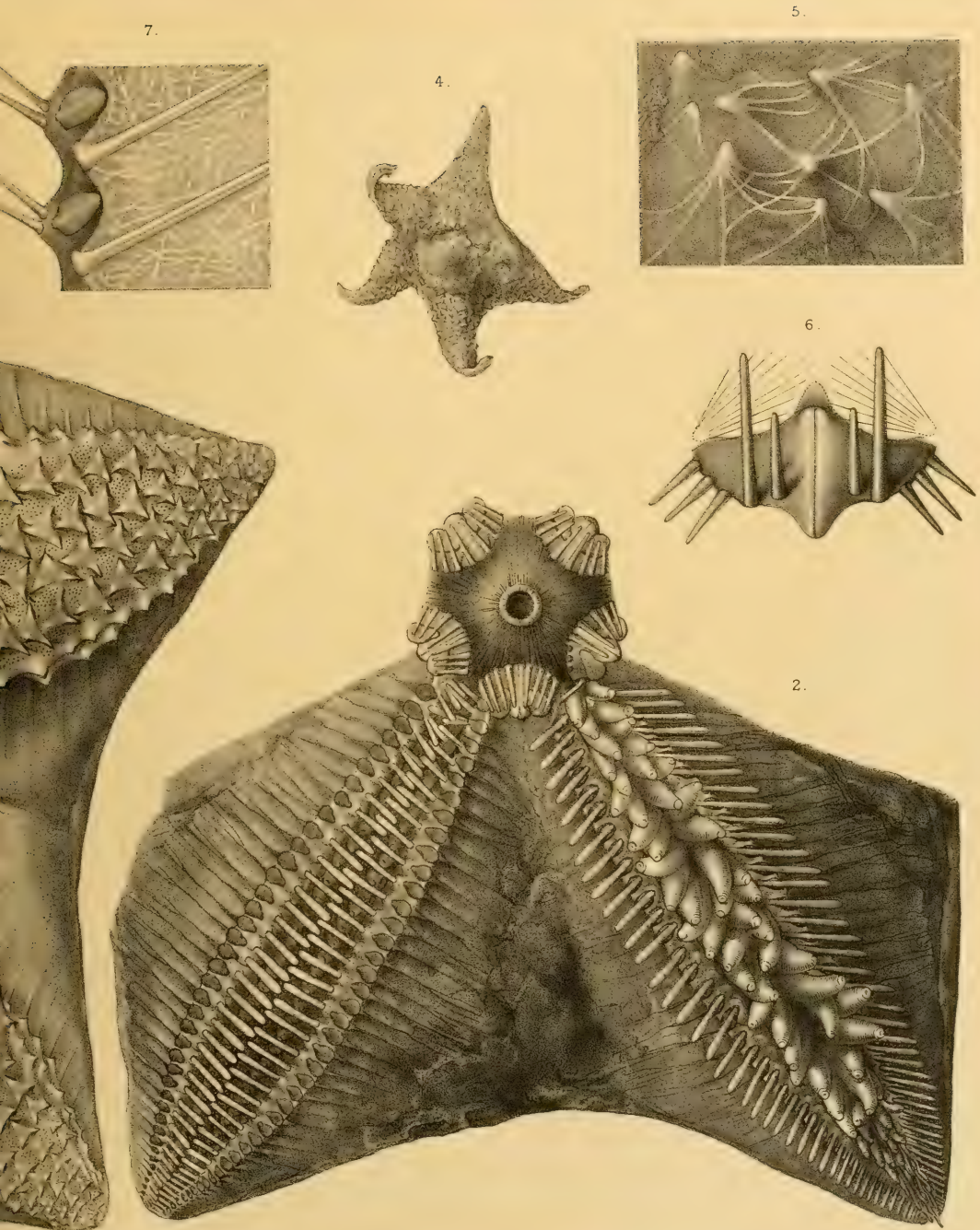
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Fig. 7. Adambulacral plates and adjacent portion of the actinal surface ; magnified 10 diameters.	

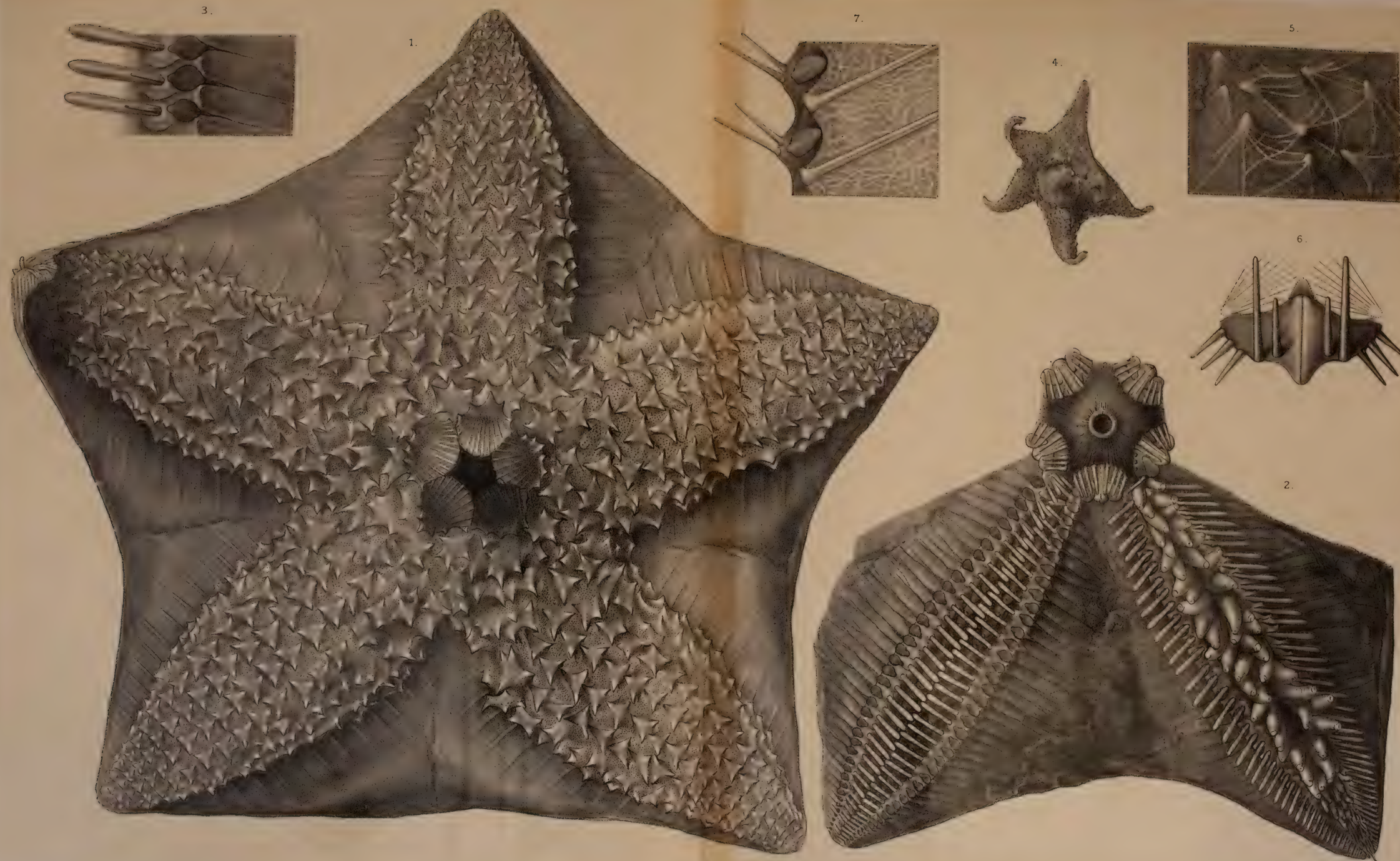


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1-3. HYMENASTER NOBILIS, Wyville Thomson.



4-7. HYMENASTER INFERNALIS, n. sp.



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1-3. HYMENASTER NOBILIS, Wyville Thomson.

F. H. Michael del.

4-7. HYMENASTER INFERNALIS, n. sp.

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Fig. 4. Mouth-plates ; magnified.	
Fig. 5. Adambulacral plates and adjacent portion of the actinal surface ; magnified 4 diameters.	



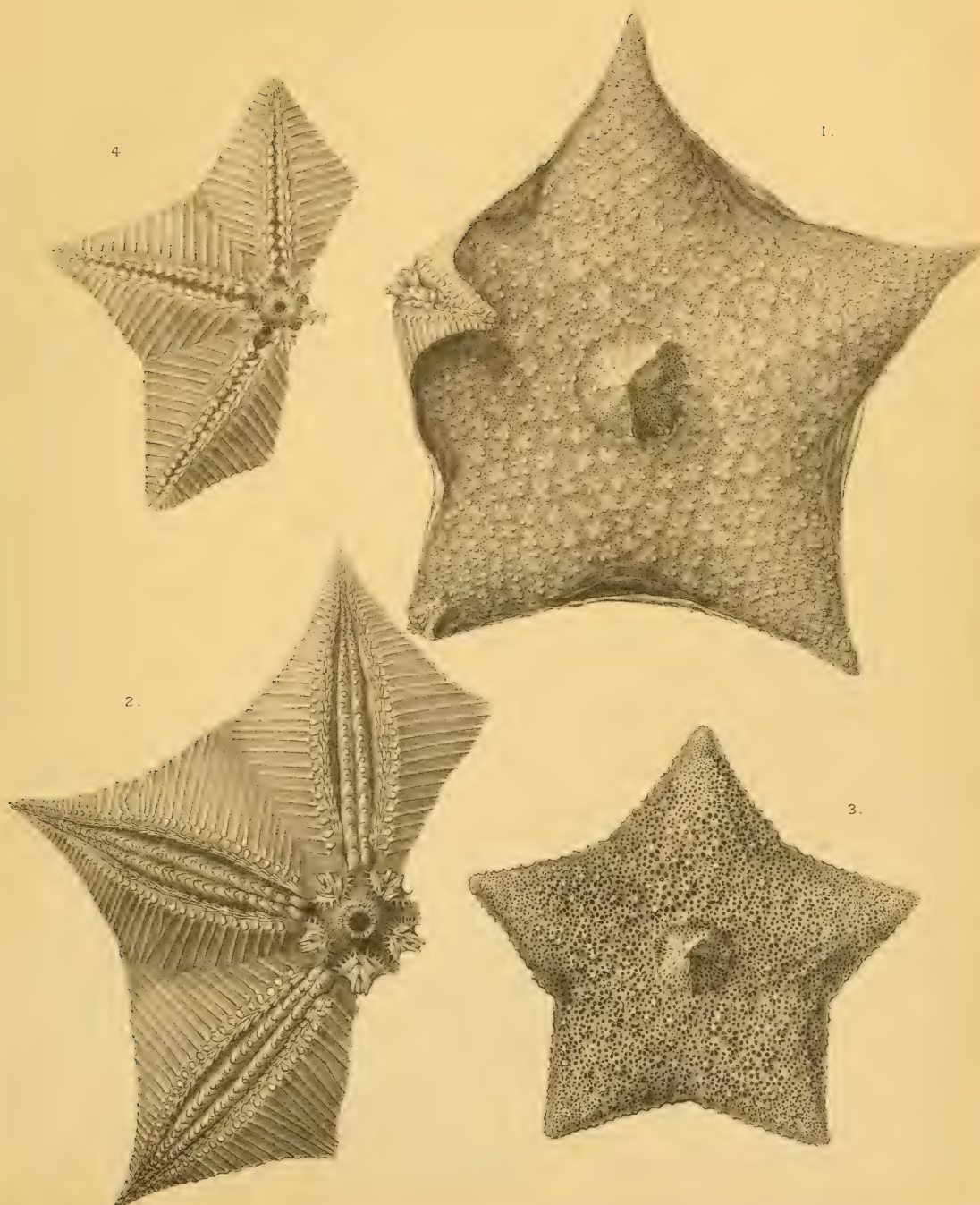
HYMENASTER CARNOSUS, n. sp.

F. H. Lohr, Edw.

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Fig. 2. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCI. figs. 1-3.]	
Figs. 3, 4. HYMENASTER ANOMALUS, n. sp. . . .	512
Fig. 3. Abactinal aspect ; magnified 3 diameters.	
Fig. 4. Actinal aspect ; magnified 3 diameters.	
[For magnified details of this species see Pl. XCI. figs. 4-6.]	



F.N. Michael del.

F. Beck, Lith. Edin.

1-2. HYMENASTER CRUCIFER, n.sp.

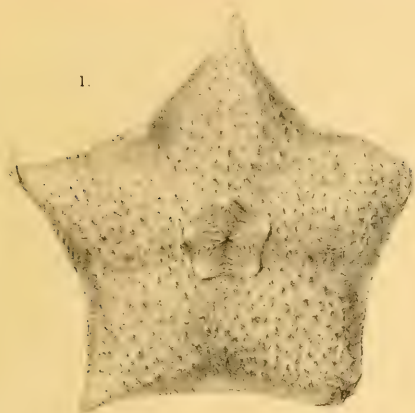
3-4. HYMENASTER ANOMALUS, n.sp.

PLATE XC.

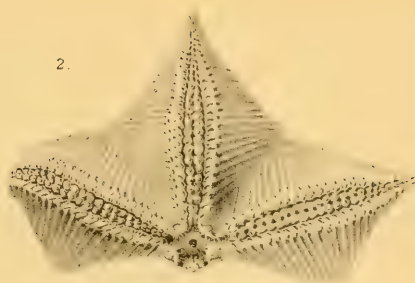
PLATE XC.

	Page
Figs. 1, 2. HYMENASTER GRANIFERUS, n. sp.	517
Fig. 1. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.	
Fig. 2. Actinal aspect; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCI. figs. 7-9.]	
Figs. 3, 4. HYMENASTER COCCINATUS, n. sp.	522
Fig. 3. Abactinal aspect; magnified 3 diameters.	
Fig. 4. Actinal aspect; magnified 3 diameters.	
[For magnified details of this species see Pl. XCI. figs. 10-12.]	
Figs. 5, 6. HYMENASTER PRÆCOQUIS, n. sp.	524
Fig. 5. Abactinal aspect; magnified 4 diameters.	
Fig. 6. Actinal aspect; magnified 4 diameters.	
(The young contained in the nidamental cavity may be seen through the membrane, and are exposed at the rent in one of the interradial areas.)	
[For magnified details of this species see Pl. XCI. figs. 13-15.]	

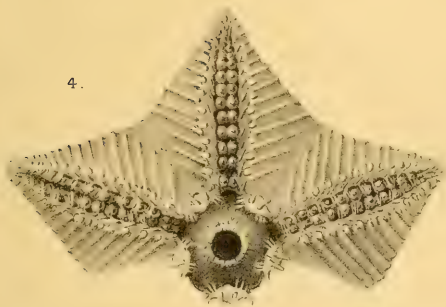
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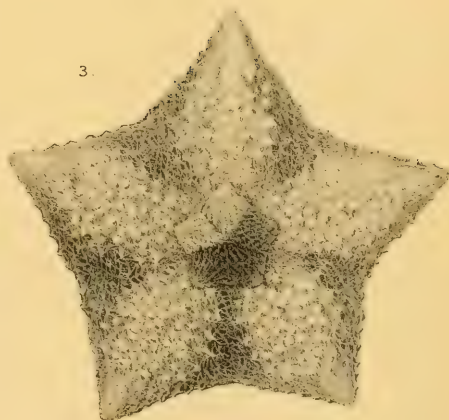
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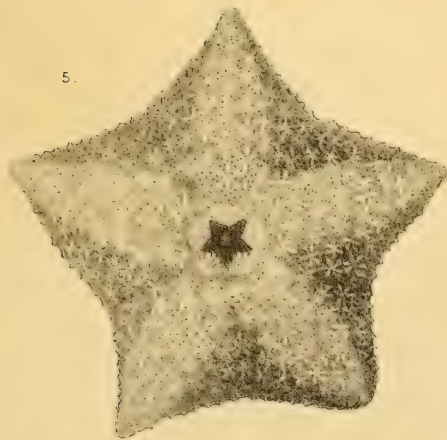
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5.



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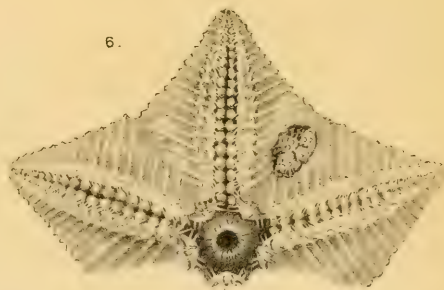
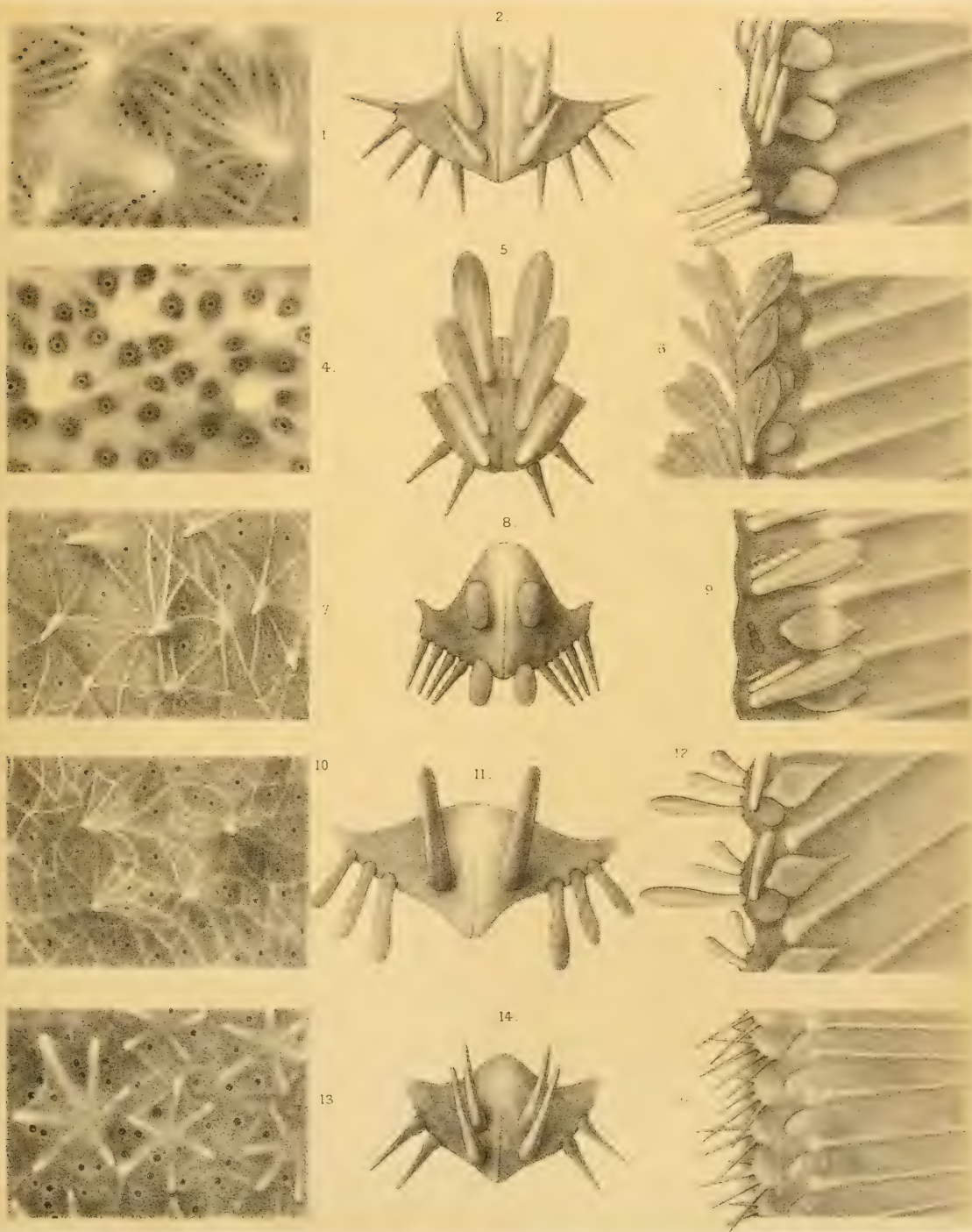


PLATE XCI.

PLATE XCI.

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Figs. 1-3. <i>HYMENASTER CRUCIFER</i> , n. sp.	511
Fig. 1. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 2. Mouth-plates ; magnified.	
Fig. 3. Adambulacral plates and adjacent portion of the actinal surface ; magnified 5 diameters.	
[For macroscopic figures of this species see Pl. LXXXIX. figs. 1, 2.]	
Figs. 4-6. <i>HYMENASTER ANOMALUS</i> , n. sp.	512
Fig. 4. A portion of the supradorsal membrane ; magnified 30 diameters.	
Fig. 5. Mouth-plates ; magnified.	
Fig. 6. Adambulacral plates and adjacent portion of the actinal surface ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. LXXXIX. figs. 3, 4.]	
Figs. 7-9. <i>HYMENASTER GRANIFERUS</i> , n. sp.	517
Fig. 7. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 8. Mouth-plates ; magnified.	
Fig. 9. Adambulacral plates and adjacent portion of the actinal surface ; magnified 10 diameters.	
[For macroscopic figures of this species see Pl. XC. figs. 1, 2.]	
Figs. 10-12. <i>HYMENASTER COCCINATUS</i> , n. sp.	522
Fig. 10. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 11. Mouth-plates ; magnified.	
Fig. 12. Adambulacral plates and adjacent portion of the actinal surface ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. XC. figs. 3, 4.]	
Figs. 13-15. <i>HYMENASTER PRÆCOQUIS</i> , n. sp.	524
Fig. 13. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 14. Mouth-plates ; magnified.	
Fig. 15. Adambulacral plates and adjacent portion of the actinal surface ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. XC. figs. 5, 6.]	



F.H. Michael del.

F.H. Little Ed.

1-3. HYMENASTER CRUCIFER, n.sp. 4-6. HYMENASTER ANOMALUS, n.sp. 7-9. HYMENASTER GRANIFERUS, n.sp.
10-12. HYMENASTER COCCINATUS, n.sp. 13-15. HYMENASTER PRÆCOQUIS, n.sp.

PLATE XCH.

PLATE XCII.

	Page
Fig. 1. HYMENASTER PULLATUS, n. sp.	519
Fig. 1. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCIII. figs. 1-3.]	
Figs. 2, 3. HYMENASTER GEOMETRICUS, n. sp.	518
Fig. 2. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.	
Fig. 3. Profile view, showing the actinal interradiar area (partly diagrammatic); magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCIII. figs. 4-6.]	
Figs. 4, 5. HYMENASTER LATEBROSUS, n. sp.	514
Fig. 4. Abactinal aspect; magnified 2 diameters.	
Fig. 5. Actinal aspect; magnified 2 diameters.	
[For magnified details of this species see Pl. XCIII. figs. 7-9.]	
Figs. 6, 7. HYMENASTER MEMBRANACEUS, Wyville Thomson,	521
Fig. 6. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.	
Fig. 7. Actinal aspect; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCIII. figs. 10-12.]	



F.H. Michael del.

F. Huth Lith. Edin'

1. HYMENASTER PULLATUS, n. sp. 2-3. HYMENASTER GEOMETRICUS, n. sp.
4-5. HYMENASTER LATEBROSUS, n. sp. 6-7. HYMENASTER MEMBRANACEUS, Wyville Thomson.

PLATE XCIII.

PLATE XCIII.

	Page
Figs. 1-3. <i>HYMENASTER PULLATUS</i> , n. sp.	519
Fig. 1. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 2. Mouth-plates ; magnified.	
Fig. 3. Adambulacral plates and adjacent portion of the actinal surface ; magnified 8 diameters.	
[For a macroscopic figure of this species see Pl. XCII. fig. 1.]	
Figs. 4-6. <i>HYMENASTER GEOMETRICUS</i> , n. sp.	518
Fig. 4. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 5. Mouth-plates ; magnified.	
Fig. 6. Adambulacral plates and adjacent portion of the actinal surface ; magnified 5 diameters.	
[For macroscopic figures of this species see Pl. XCII. figs. 2, 3.]	
Figs. 7-9. <i>HYMENASTER LATEBROSUS</i> , n. sp.	514
Fig. 7. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 8. Mouth-plates ; magnified.	
Fig. 9. Adambulacral plates and adjacent portion of the actinal surface ; magnified 8 diameters.	
[For macroscopic figures of this species see Pl. XCII. figs. 4, 5.]	
Figs. 10-12. <i>HYMENASTER MEMBRANACEUS</i> , Wyville Thomson,	521
Fig. 10. A portion of the supradorsal membrane ; magnified 15 diameters.	
Fig. 11. Mouth-plates ; magnified.	
Fig. 12. Adambulacral plates and adjacent portion of the actinal surface ; magnified 8 diameters.	
[For macroscopic figures of this species see Pl. XCII. figs. 6, 7.]	

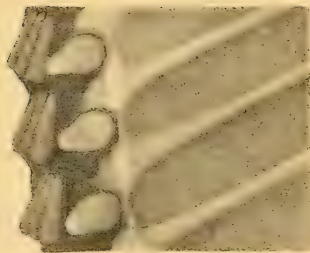
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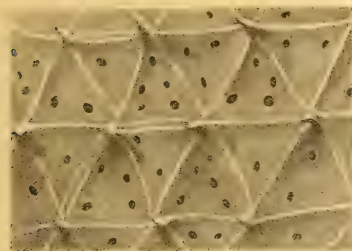
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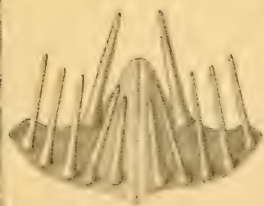
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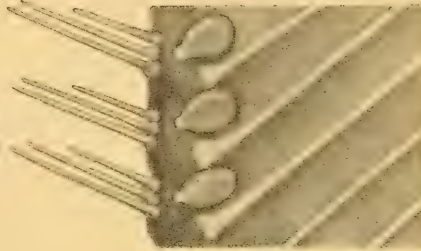
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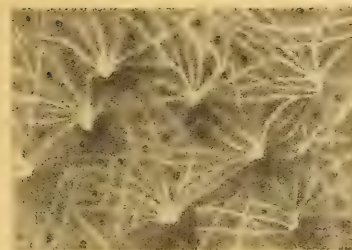
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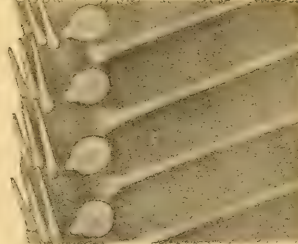
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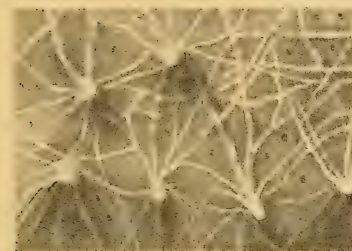
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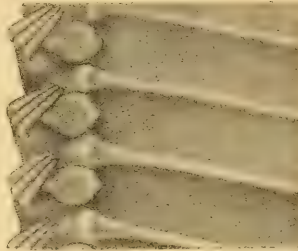
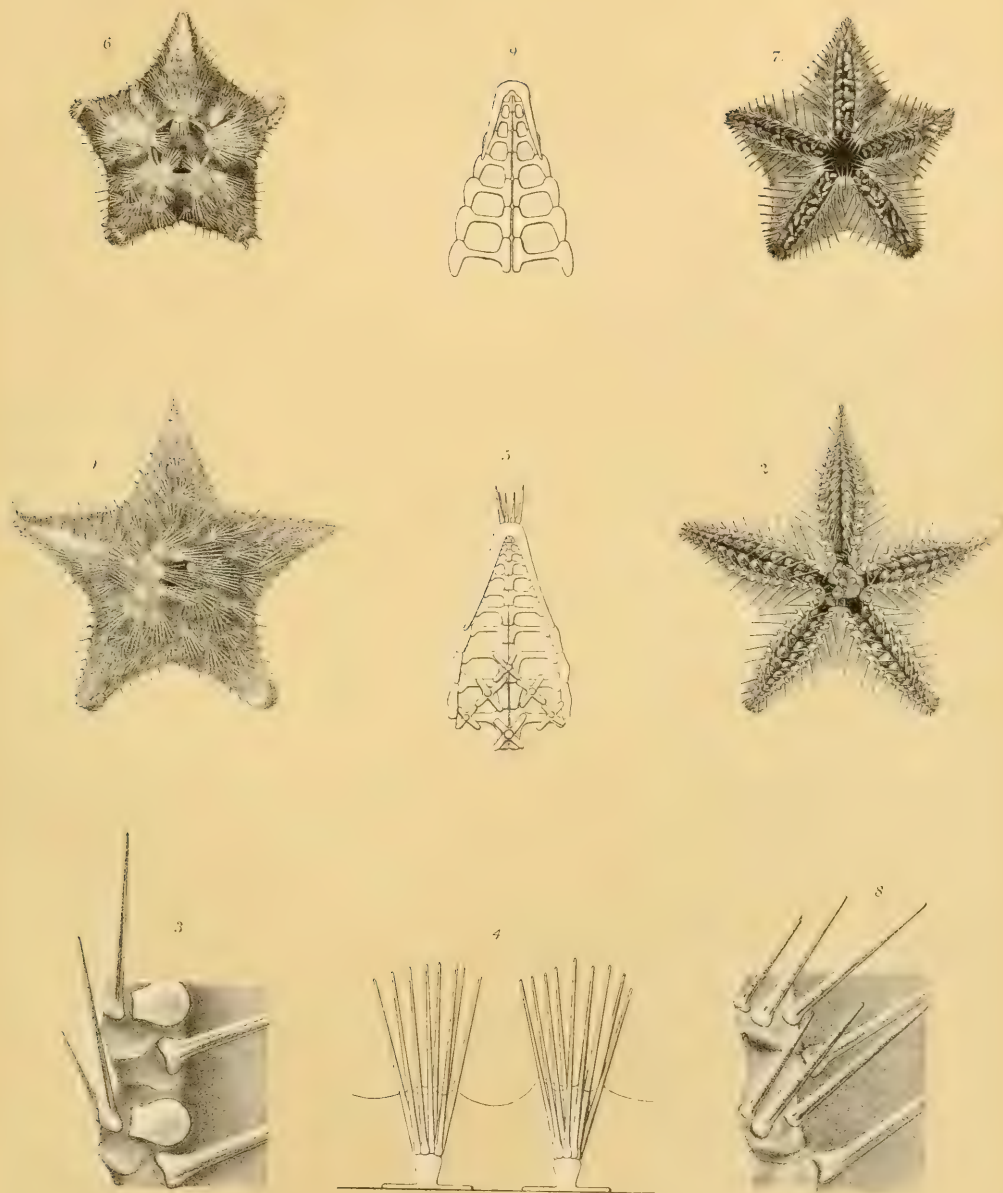


PLATE XCIV.

PLATE XCIV.

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Figs. 1-5. BENTHASTER WYVILLE-THOMSONI, n. sp.	527
Fig. 1. Abactinal aspect ; magnified 2 diameters.	
Fig. 2. Actinal aspect ; magnified 2 diameters.	
Fig. 3. Adambulacral plates and adjacent portion of the actinal surface ; magnified 18 diameters.	
Fig. 4. Diagrammatic view of the abactinal paxillæ and rudimentary supradorsal membrane, seen in profile ; magnified.	
Fig. 5. Diagram of the plates on the outer part of a ray ; magnified.	
Figs. 6-9. BENTHASTER PENICILLATUS, n. sp.	529
Fig. 6. Abactinal aspect ; magnified 2 diameters.	
Fig. 7. Actinal aspect ; magnified 2 diameters.	
Fig. 8. Adambulacral plates and adjacent portion of the actinal surface ; magnified.	
Fig. 9. Diagram of the plates on the outer part of a ray ; magnified.	



T.H. Michael del. H. Hillebrand lith.

Hanhart imp.

1-5. BENTHASTER WYVILLE-THOMSONI, n. sp.

6-9. BENTHASTER PENICILLATUS, n. sp.

PLATE XCV.

PLATE XCV.

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Figs. 1-5. <i>PYTHONASTER MURRAYI</i> , n. sp.				532
Fig. 1.	Abactinal aspect; magnified $1\frac{1}{2}$ diameters.			
Fig. 2.	Actinal aspect; magnified $1\frac{1}{2}$ diameters.			
Fig. 3.	Adambulacral plates and adjacent portion of the actinal surface; magnified 9 diameters.			
Fig. 4.	A portion of the abactinal surface; magnified 9 diameters.			
Fig. 5.	Mouth-plates; magnified 5 diameters.			

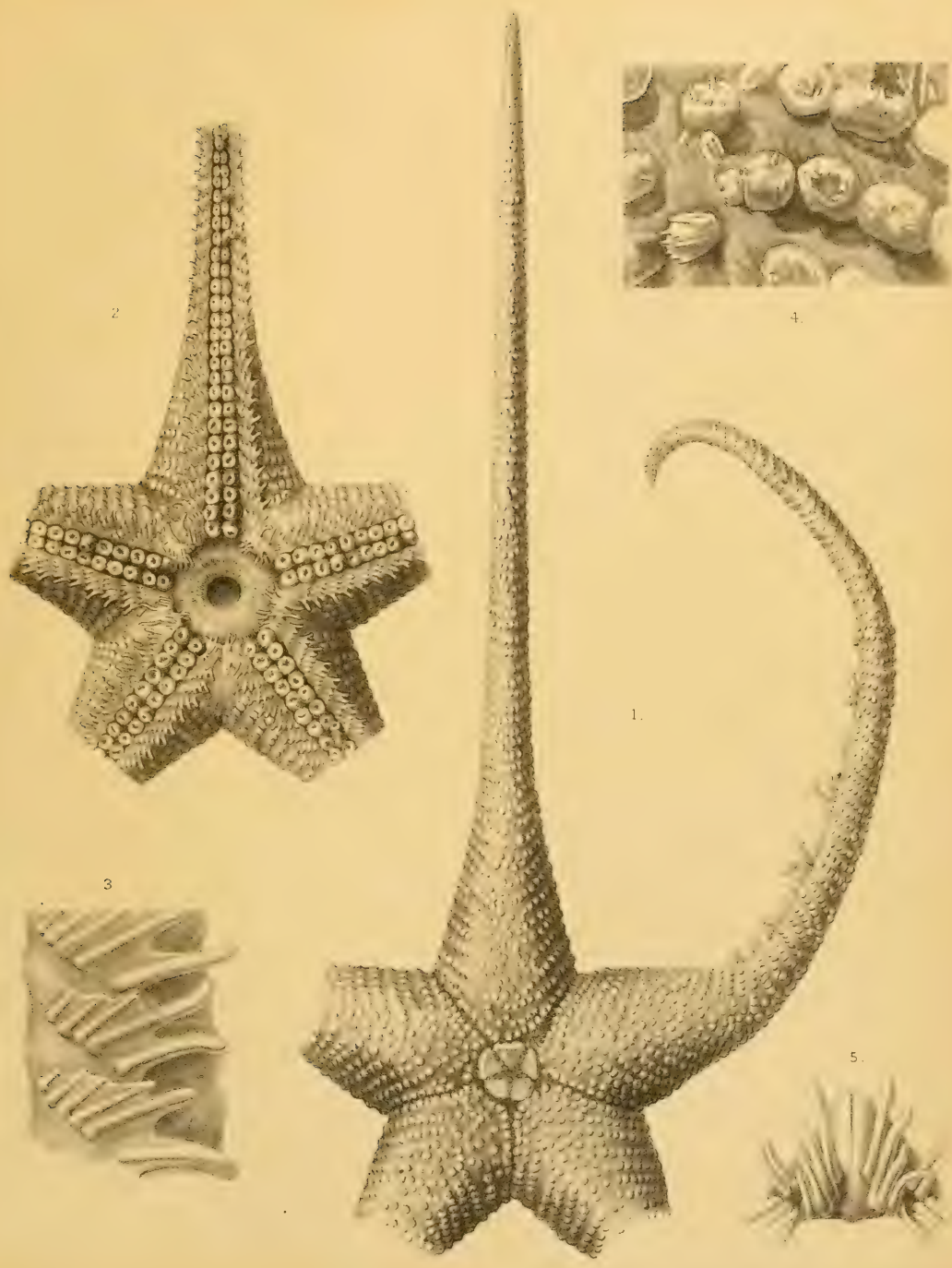
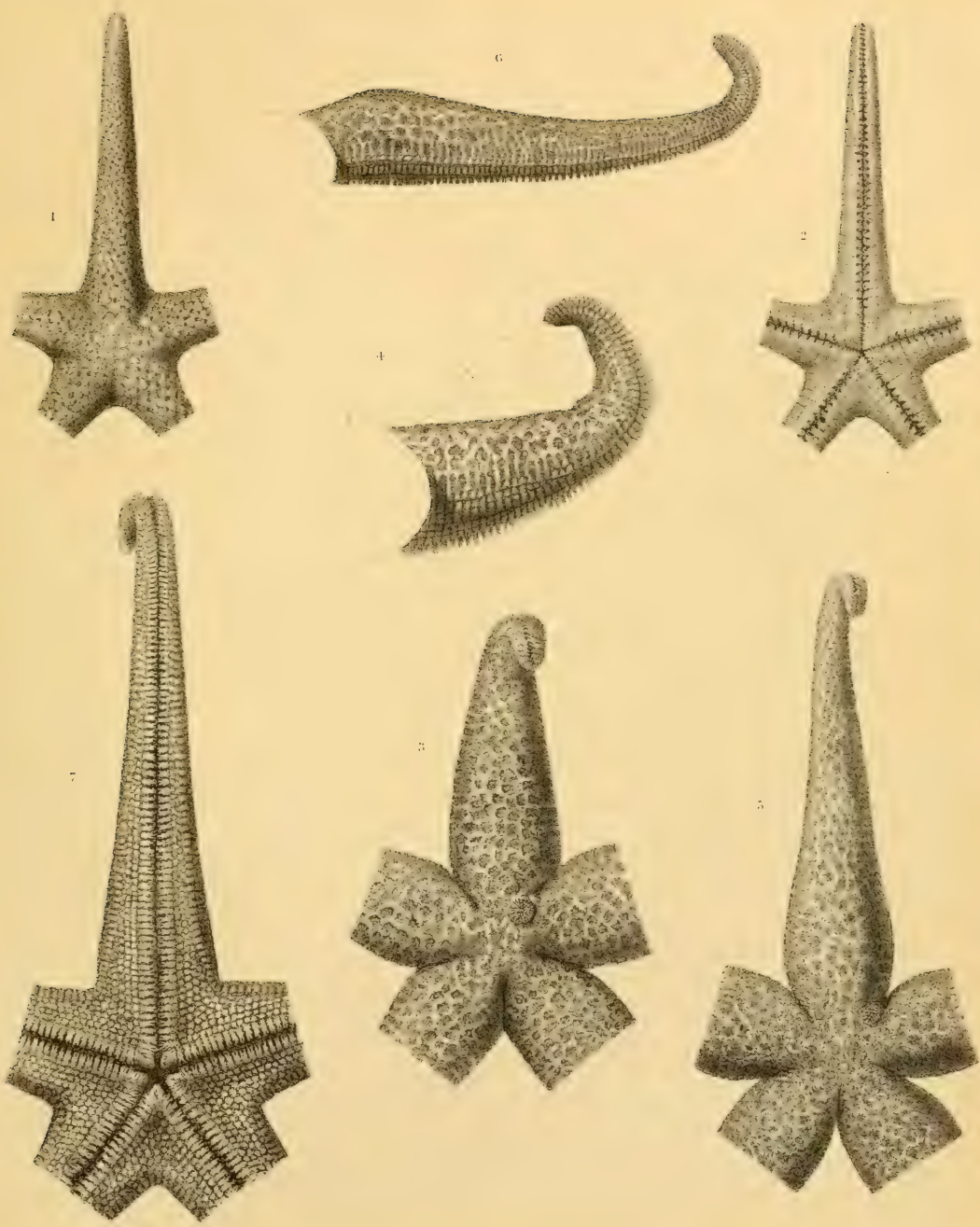


PLATE XCVI.

PLATE XCVI.

	Page
Figs. 1, 2. <i>CRIBRELLA COMPACTA</i> , n. sp.	543
Fig. 1. Abactinal aspect ; magnified 4 diameters.	
Fig. 2. Actinal aspect ; magnified 4 diameters.	
[For magnified details of this species see Pl. XCVIII. figs. 3, 4.]	
Figs. 3, 4. <i>CRIBRELLA OBESA</i> , n. sp.	544
Fig. 3. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 4. Profile view of a ray ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCVIII. figs. 5, 6.]	
Figs. 5, 6. <i>CRIBRELLA SUFFLATA</i> , n. sp.	549
Fig. 5. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 6. Profile view of a ray ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCVIII. figs. 1, 2.]	
Fig. 7. <i>CRIBRELLA PRÆSTANS</i> , n. sp.	545
Fig. 7. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCVIII. figs. 7, 8.]	



F.H. Michael del. et lith.

Moderata Ecce imp.

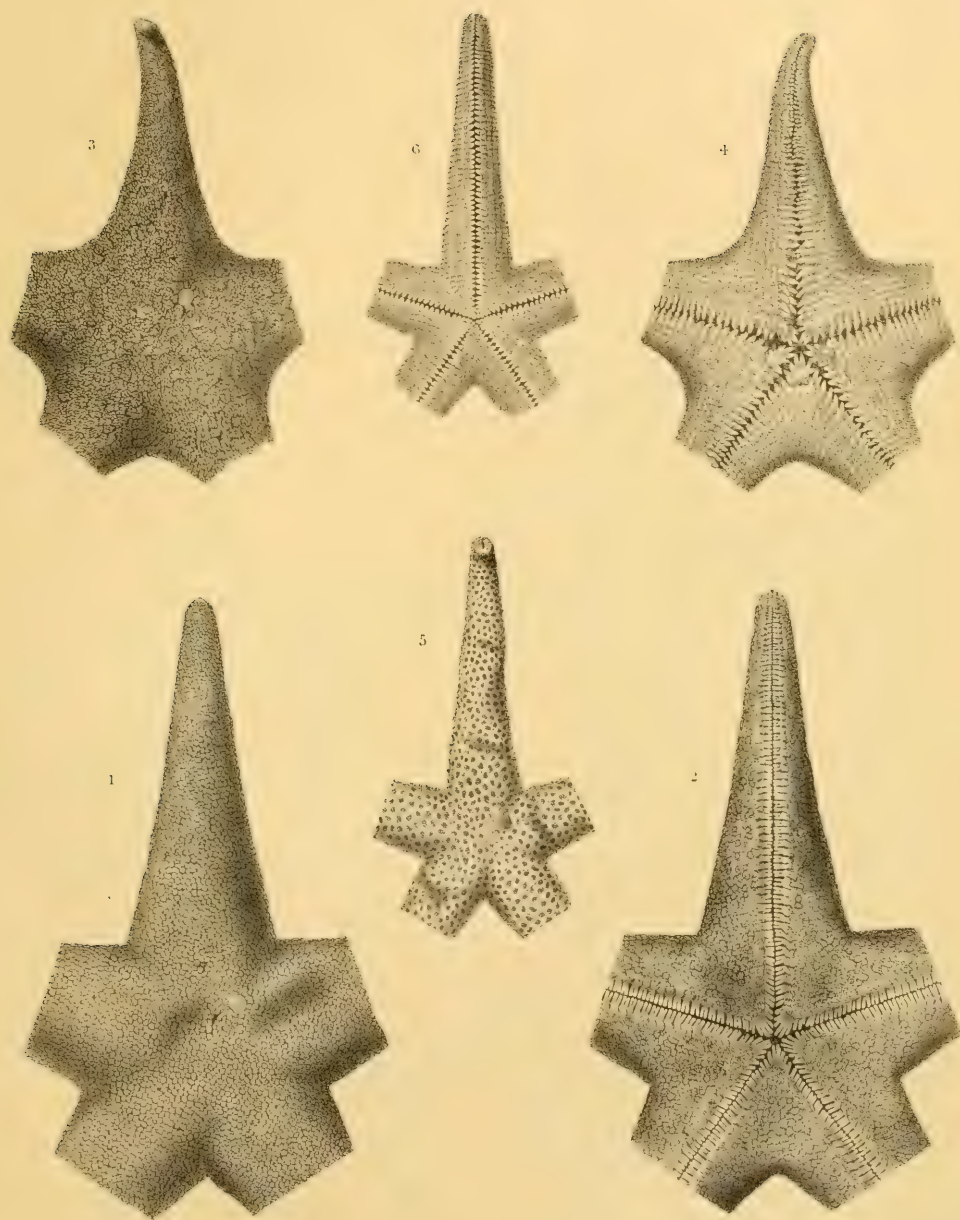
1-2. CRIBRELLA COMPACTA, n.sp.
5-6. CRIBRELLA SUFFLATA, n.sp.

3-4. CRIBRELLA OBESA, n.sp.
7. CRIBRELLA PRÆSTANS, n.sp.

PLATE XCVII.

PLATE XCVII.

		Page
Figs. 1, 2.	PERKMASTER DENSUS, n. sp.	552
Fig. 1.	Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 2.	Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. XCVIII. figs. 11, 12.]		
Figs. 3, 4.	PERKMASTER FUSCUS, n. sp.	551
Fig. 3.	Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 4.	Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. LXII. fig. 1.]		
Figs. 5, 6.	CRIBRELLA SIMPLEX, n. sp.	547
Fig. 5.	Abactinal aspect ; magnified 2 diameters.	
Fig. 6.	Actinal aspect ; magnified 2 diameters.	
[For magnified details of this species see Pl. XCVIII. figs. 9, 10.]		

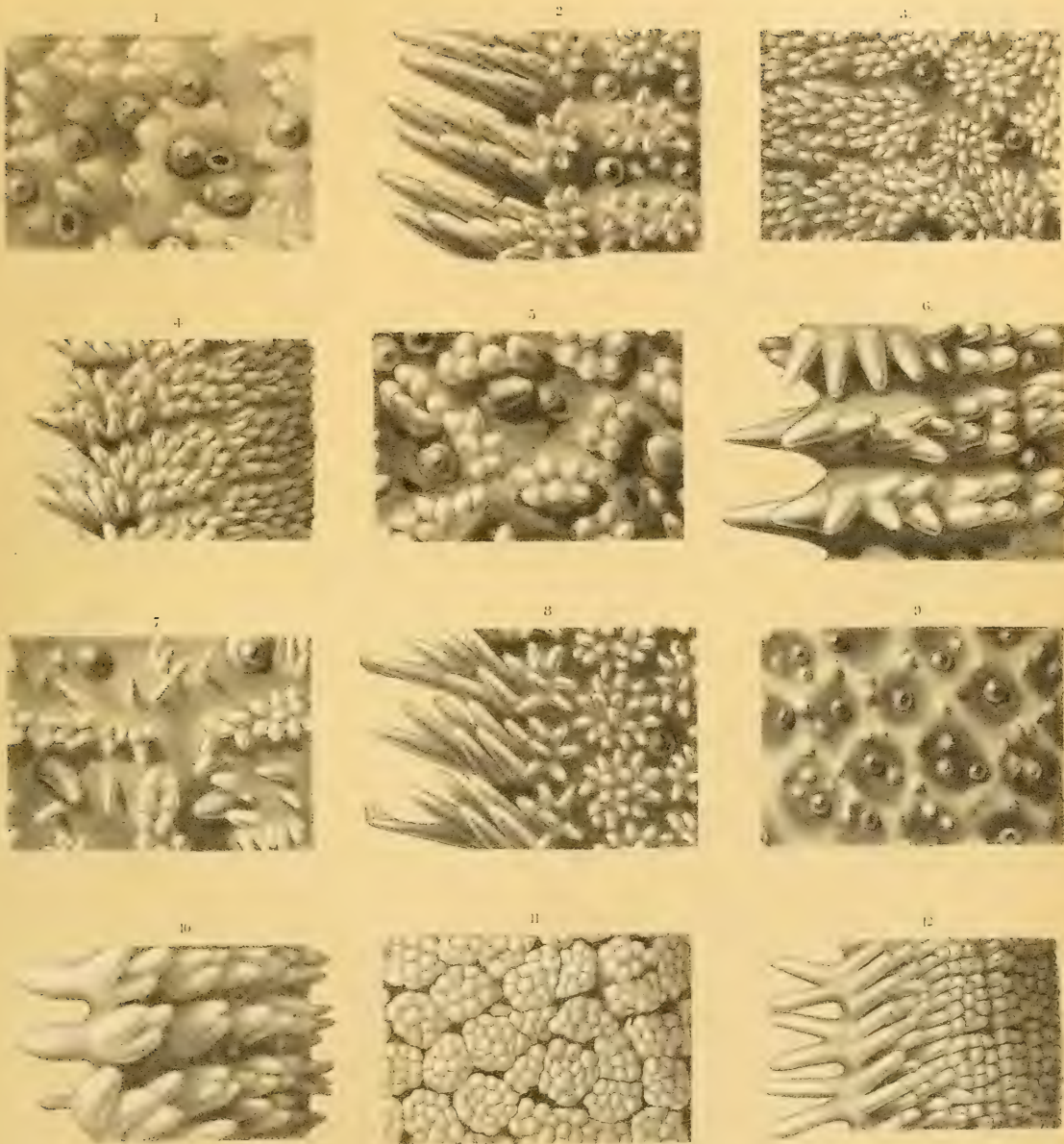


1-2. PERKNASTER DENSUS, n.sp. 3-4. PERKNASTER FUSCUS, n.sp.
5-6. CRIBRELLA SIMPLEX, n.sp.

PLATE XCVIII.

PLATE XCVIII.

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Figs. 1, 2. <i>CRIBRELLA SUFFLATA</i> , n. sp.	549
Fig. 1. A portion of the abactinal surface ; magnified 12 diameters.	
Fig. 2. Adambulacral plates and adjacent portion of the actinal surface ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. XCVI. figs. 5, 6.]	
Figs. 3, 4. <i>CRIBRELLA COMPACTA</i> , n. sp.	543
Fig. 3. A portion of the abactinal surface ; magnified 35 diameters.	
Fig. 4. Adambulacral plates and adjacent portion of the actinal surface ; magnified 35 diameters.	
[For macroscopic figures of this species see Pl. XCVI. figs. 1, 2.]	
Figs. 5, 6. <i>CRIBRELLA OBESA</i> , n. sp.	544
Fig. 5. A portion of the abactinal surface ; magnified 15 diameters.	
Fig. 6. Adambulacral plates and adjacent portion of the actinal surface ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. XCVI. figs. 3, 4.]	
Figs. 7, 8. <i>CRIBRELLA PRÆSTANS</i> , n. sp.	545
Fig. 7. A portion of the abactinal surface ; magnified 16 diameters.	
Fig. 8. Adambulacral plates and adjacent portion of the actinal surface ; magnified 18 diameters.	
[For a macroscopic figure of this species see Pl. XCVI. fig. 7.]	
Figs. 9, 10. <i>CRIBRELLA SIMPLEX</i> , n. sp.	547
Fig. 9. A portion of the abactinal surface ; magnified 16 diameters.	
Fig. 10. Adambulacral plates and adjacent portion of the actinal surface ; magnified 20 diameters.	
[For macroscopic figures of this species see Pl. XCVII. figs. 5, 6.]	
Figs. 11, 12. <i>PERKNASTER DENSUS</i> , n. sp.	552
Fig. 11. A portion of the abactinal surface ; magnified 15 diameters.	
Fig. 12. Adambulacral plates and adjacent portion of the actinal surface ; magnified 10 diameters.	
[For macroscopic figures of this species see Pl. XCVII. figs. 1, 2.]	



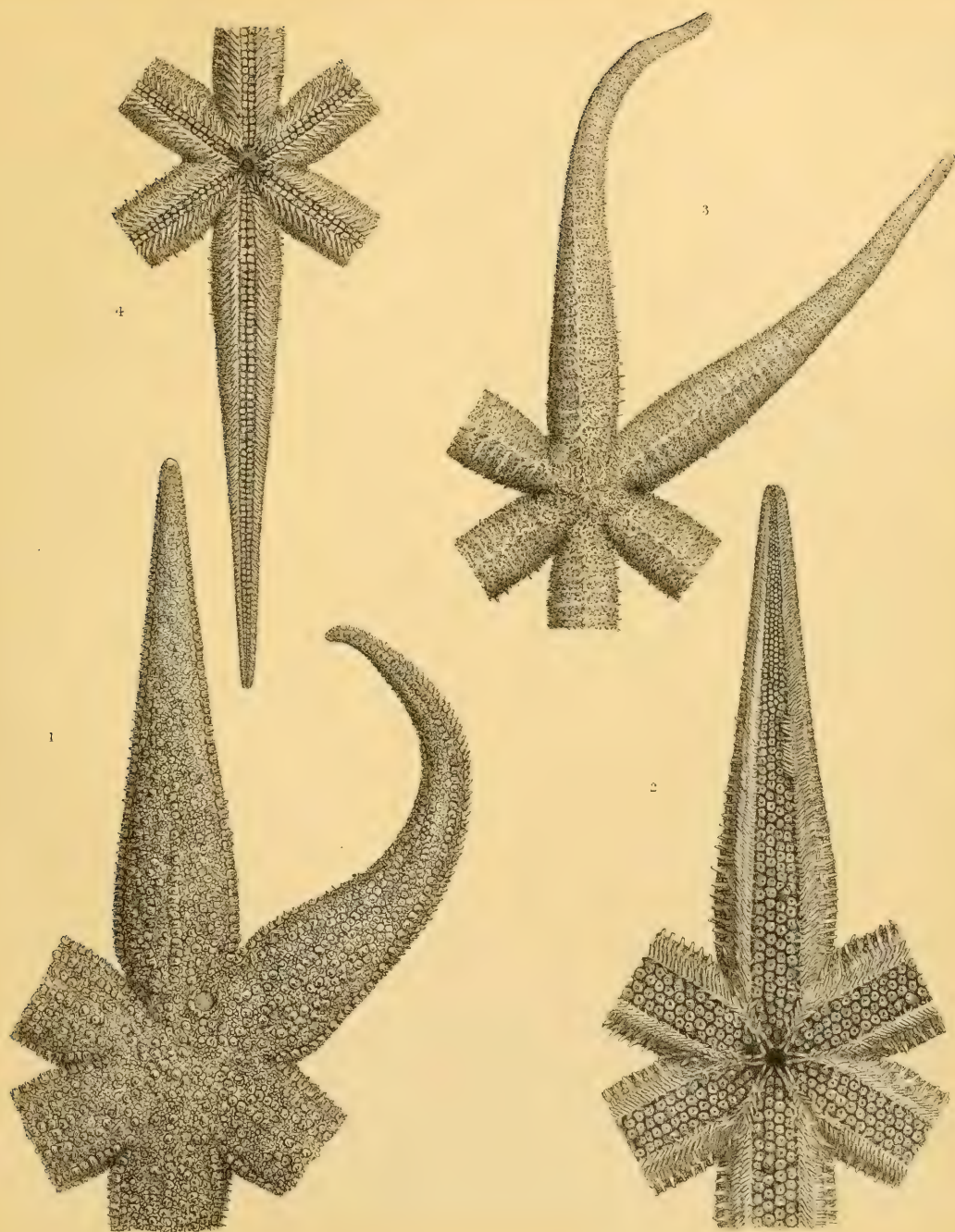
1-2. *CRIBRELLA SUFFLATA*, n.sp.
 5-6. *CRIBRELLA OBESA*, n.sp.
 9-10. *CRIBRELLA SIMPLEX*, n.sp.

3-4. *CRIBRELLA COMPACTA*, n.sp.
 7-8. *CRIBRELLA PRÆSTANS*, n.sp.
 11-12. *PERKNASTER DENSUS*, n.sp.

PLATE XCIX.

PLATE XCIX.

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Figs. 1, 2. <i>ASTERIAS VESICULOSA</i> , n. sp.	568
Fig. 1. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.	
Fig. 2. Actinal aspect; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. CIII. figs. 9, 10.]	
Figs. 3, 4. <i>ASTERIAS (HYDRASTERIAS) OPHIDION</i> , n. sp.	581
Fig. 3. Abactinal aspect; magnified 2 diameters.	
Fig. 4. Actinal aspect; magnified 2 diameters.	
[For magnified details of this species see Pl. CIII. figs. 3, 4.]	



F. H. Michael del et lith.

Miner's Press imp.

1-2. *ASTERIAS VESICULOSA*, n. sp.

3-4. *ASTERIAS (HYDRASTERIAS) OPHIDION*, n. sp.

PLATE C.

PLATE C.

Figs. 1-3. STICHAETER POLYGRAMMUS, n. sp.	Page 434
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Fig. 1. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 2. Actinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 3. Profile view of a ray; magnified $1\frac{1}{2}$ diameters.

[For magnified details of this species see Pl. CIII. figs. 5, 6.]

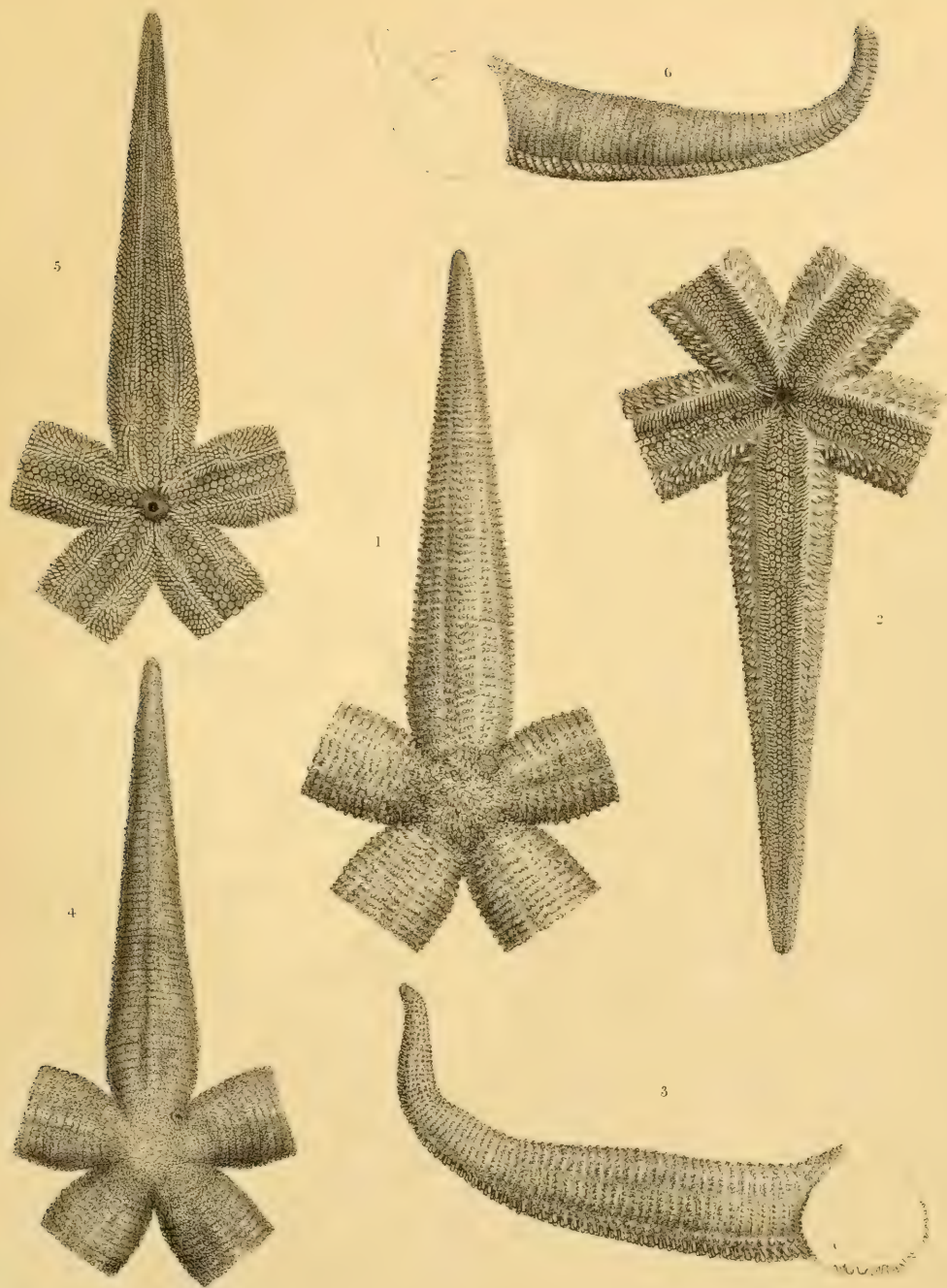
Figs. 4-6. ASTERIAS (SMILASTERIAS) SCALPRIFERA, n. sp.	578
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Fig. 4. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 5. Actinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 6. Profile view of a ray; magnified $1\frac{1}{2}$ diameters.

[For magnified details of this species see Pl. CIII. figs. 1, 2.]



T.H. Michael & W.H. Crother del et lith

Monter, Zool. imp

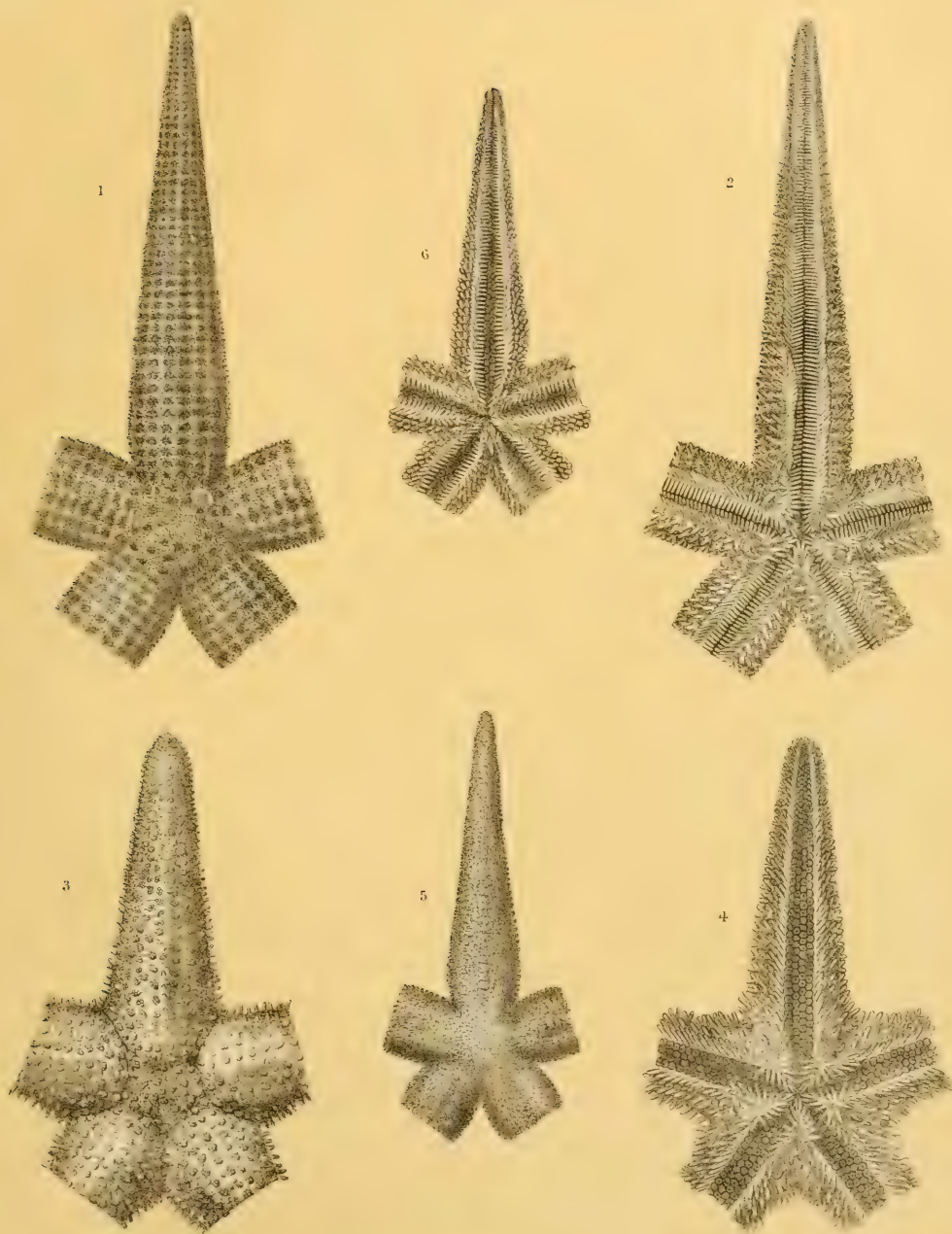
1-3. STICHAETER POLYGRAMMUS, n. sp.

4-6. ASTERIAS (SMILASTERIAS) SCALPRIFERA, n. sp.

PLATE CI.

PLATE CL.

	Page
Figs. 1, 2. <i>STICHAETER FELIPES</i> , n. sp.	433
Fig. 1. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 2. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. CIII. figs. 7, 8.]	
Figs. 3, 4. <i>CALVASTERIAS STOLIDOTA</i> , n. sp.	590
Fig. 3. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 4. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
[For magnified details of this species see Pl. CIII. figs. 11, 12.]	
Figs. 5, 6. <i>ASTERIAS (SMILASTERIAS) TRIREMIS</i> , n. sp.	579
Fig. 5. Abactinal aspect ; magnified 2 diameters.	
Fig. 6. Actinal aspect ; magnified 2 diameters.	
[For magnified details of this species see Pl. CII. figs. 5, 6.]	



H. Crowther del. et lith.

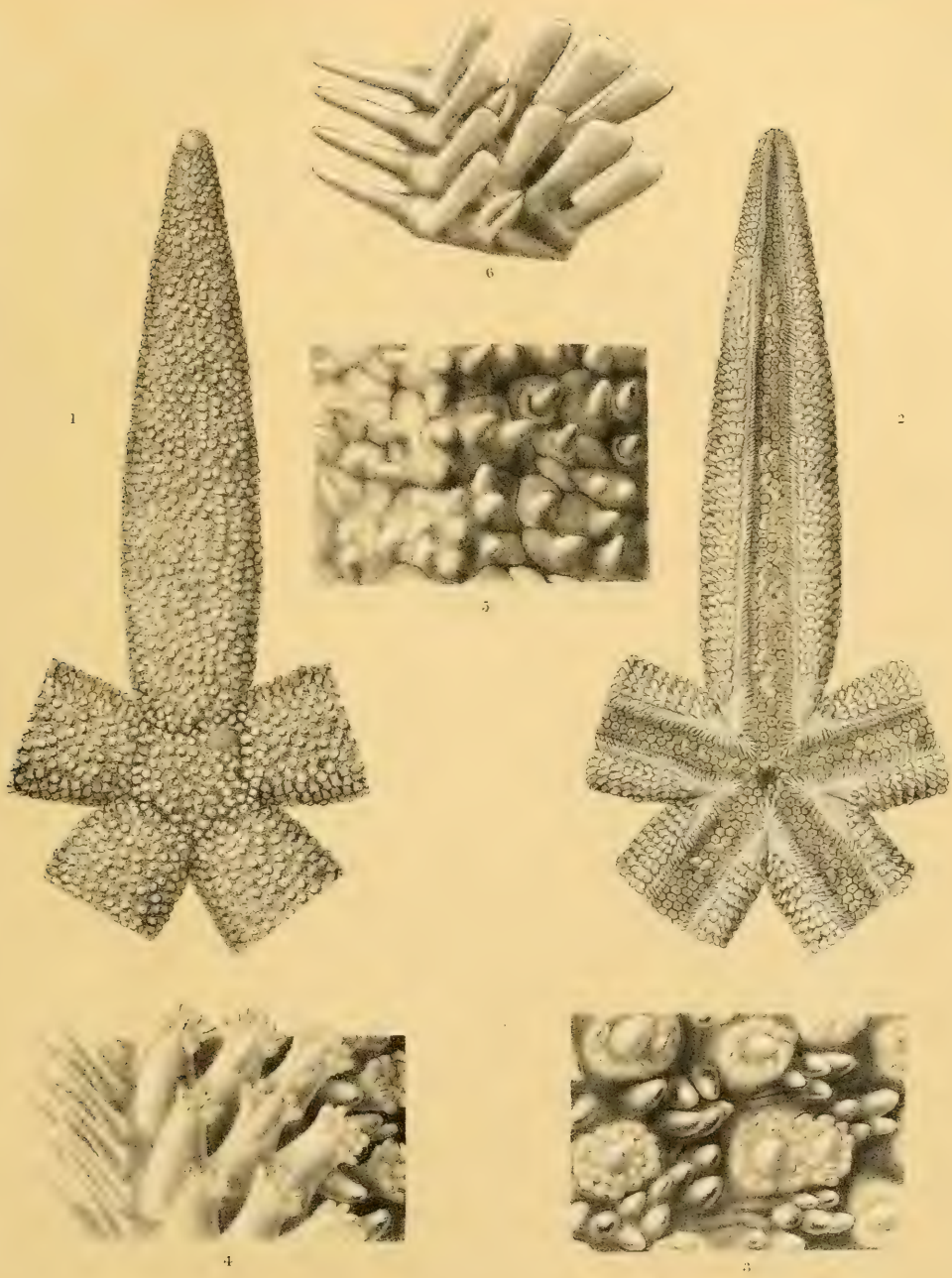
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1-2. *STICHAETER FELIPES*, n. sp. 3-4. *CALVASTERIAS STOLIDOTA*, n. sp.
 5-6. *ASTERIAS (SMILASTERIAS) TRIREMIS*, n. sp.

PLATE CII.

PLATE CII.

	Page
Figs. 1-4. <i>ASTERIAS TORQUATA</i> , n. sp.	570
Fig. 1. Abactinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 2. Actinal aspect ; magnified $1\frac{1}{2}$ diameters.	
Fig. 3. A portion of the abactinal surface ; magnified 12 diameters.	
Fig. 4. Adambulacral plates and adjacent portion of the actinal surface ; magnified 10 diameters.	
 Figs. 5, 6. <i>ASTERIAS (SMILASTERIAS) TRIREMIS</i> , n. sp.	 579
Fig. 5. A portion of the abactinal surface ; magnified 20 diameters.	
Fig. 6. Adambulacral plates and adjacent portion of the actinal surface ; magnified 20 diameters.	
[For macroscopic figures of this species see Pl. CI. figs. 5, 6.]	



1-4. ASTERIAS TORQUATA, n. sp.

5-6. ASTERIAS (SMILASTERIAS) TRIREMIS, n. sp.

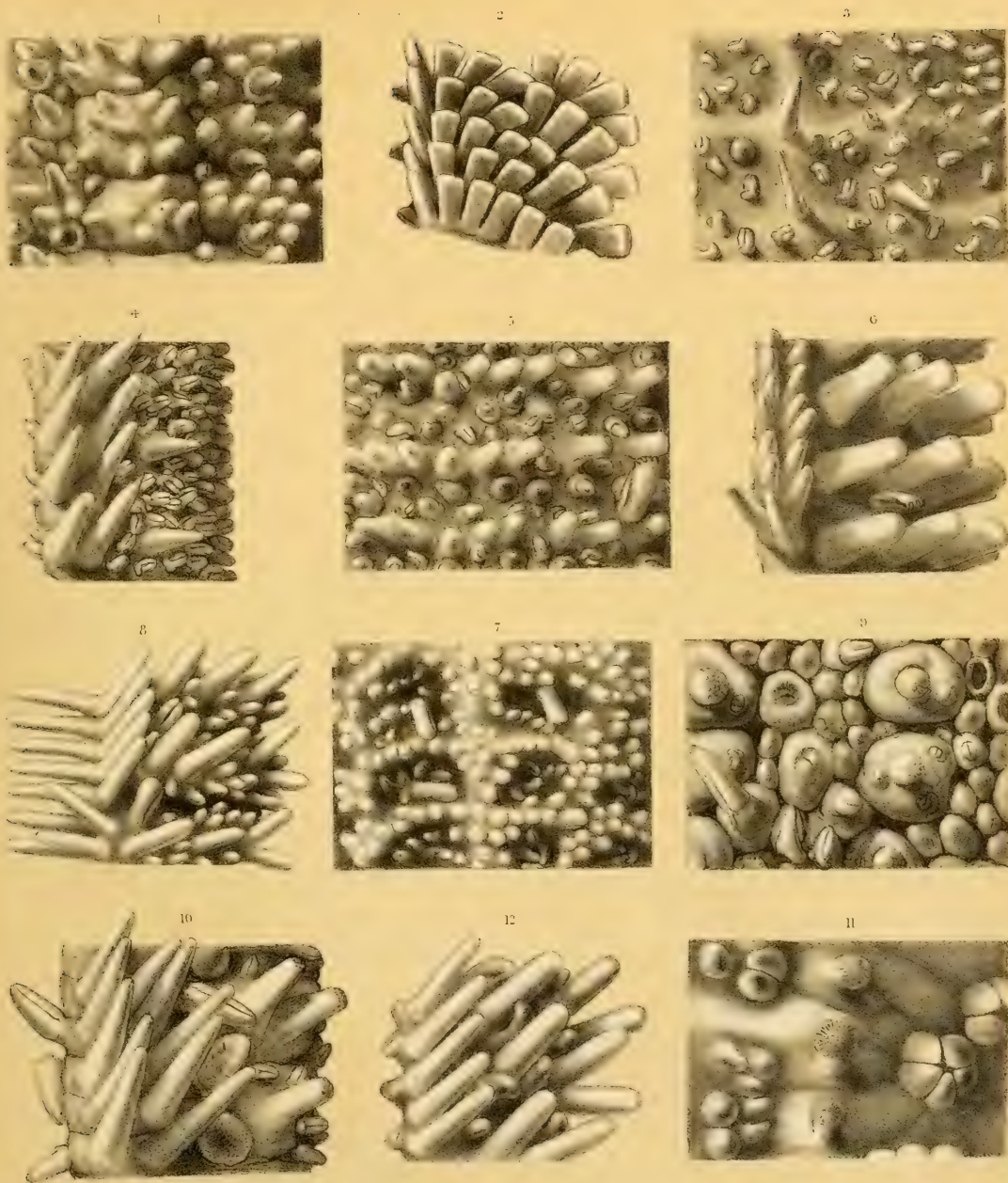
W. H. Cresson del. et lit.

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PLATE CIII.

PLATE CHII.

	Page
Figs. 1, 2. <i>ASTERIAS (SMILASTERIAS) SCALPRIFERA</i> , n. sp.	578
Fig. 1. A portion of the abactinal surface ; magnified 15 diameters.	
Fig. 2. Adambulacral plates and adjacent portion of the actinal surface ; magnified 15 diameters.	
[For macroscopic figures of this species see Pl. C. figs. 4-6.]	
Figs. 3, 4. <i>ASTERIAS (HYDRASTERIAS) OPHIDION</i> , n. sp.	581
Fig. 3. A portion of the abactinal surface ; magnified 12 diameters.	
Fig. 4. Adambulacral plates and adjacent portion of the actinal surface ; magnified 14 diameters.	
[For macroscopic figures of this species see Pl. XCIX. figs. 3, 4.]	
Figs. 5, 6. <i>STICHAETER POLYGRAMMUS</i> , n. sp.	434
Fig. 5. A portion of the abactinal surface ; magnified 12 diameters.	
Fig. 6. Adambulacral plates and adjacent portion of the actinal surface ; magnified 10 diameters.	
[For macroscopic figures of this species see Pl. C. figs. 1-3.]	
Figs. 7, 8. <i>STICHAETER FELIPES</i> , n. sp.	433
Fig. 7. A portion of the abactinal surface ; magnified 10 diameters.	
Fig. 8. Adambulacral plates and adjacent portion of the actinal surface ; magnified 9 diameters.	
[For macroscopic figures of this species see Pl. CI. figs. 1, 2.]	
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[For macroscopic figures of this species see Pl. CI. figs. 3, 4.]	



1-2. *ASTERIAS (SMILASTERIAS) SCALPRIFERA*, n. sp.

5-6. *STICHASTER POLYGRAMMUS*, n. sp.

9-10. *ASTERIAS VESICULOSA*, n. sp.

3-4. *ASTERIAS (HYDRASTERIAS) OPHIDION*, n. sp.

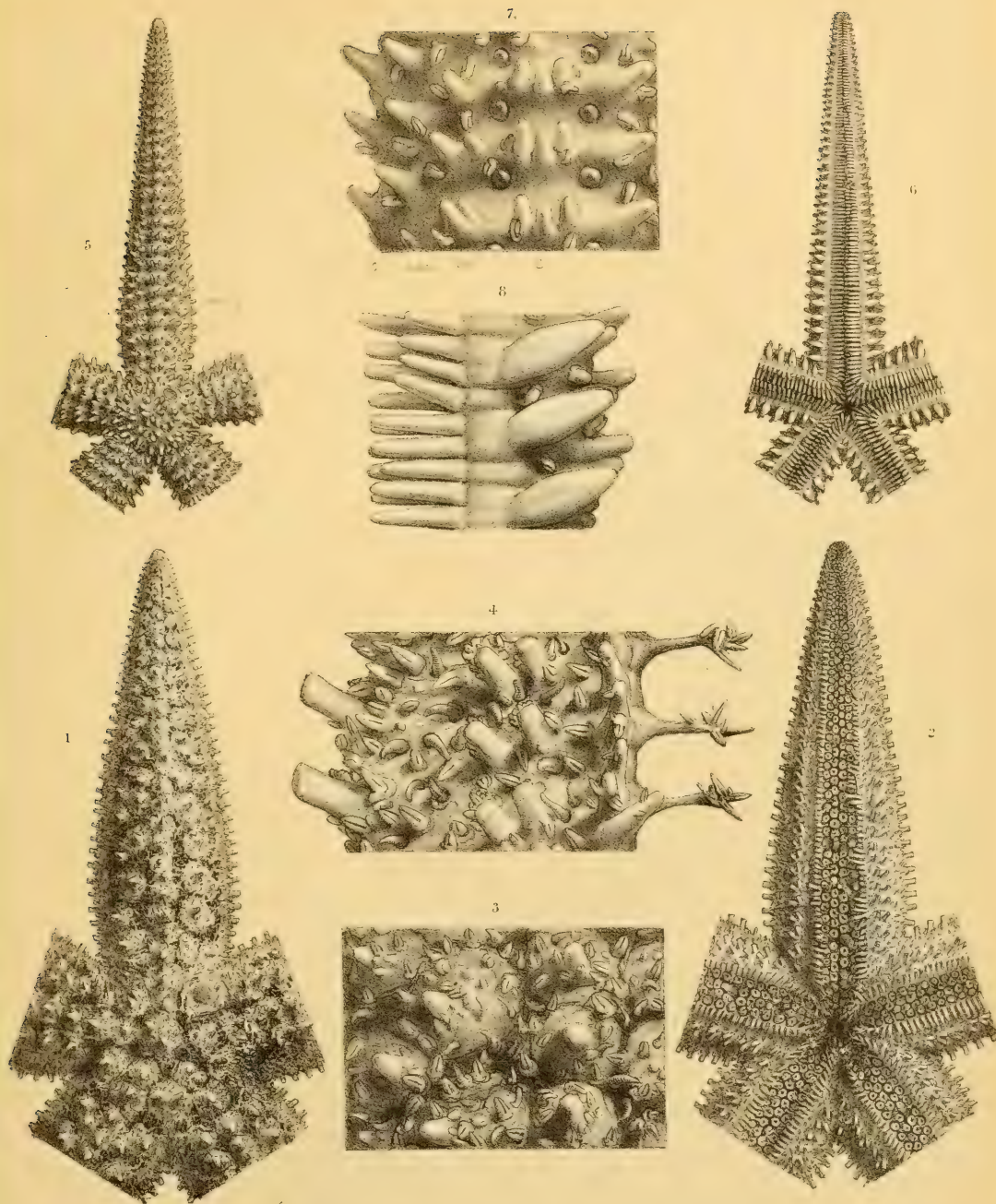
7-8. *STICHASTER FELIPES*, n. sp.

11-12. *CALVASTERIAS STOLIDOTA*, n. sp.

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PLATE CIV.

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F. H. Michael del et lith.

Martens Bros. imp.

1-4. *ASTERIAS VERSICOLOR*, n. sp.

5-8. *TARSASTER STOICHODES*, n. sp.

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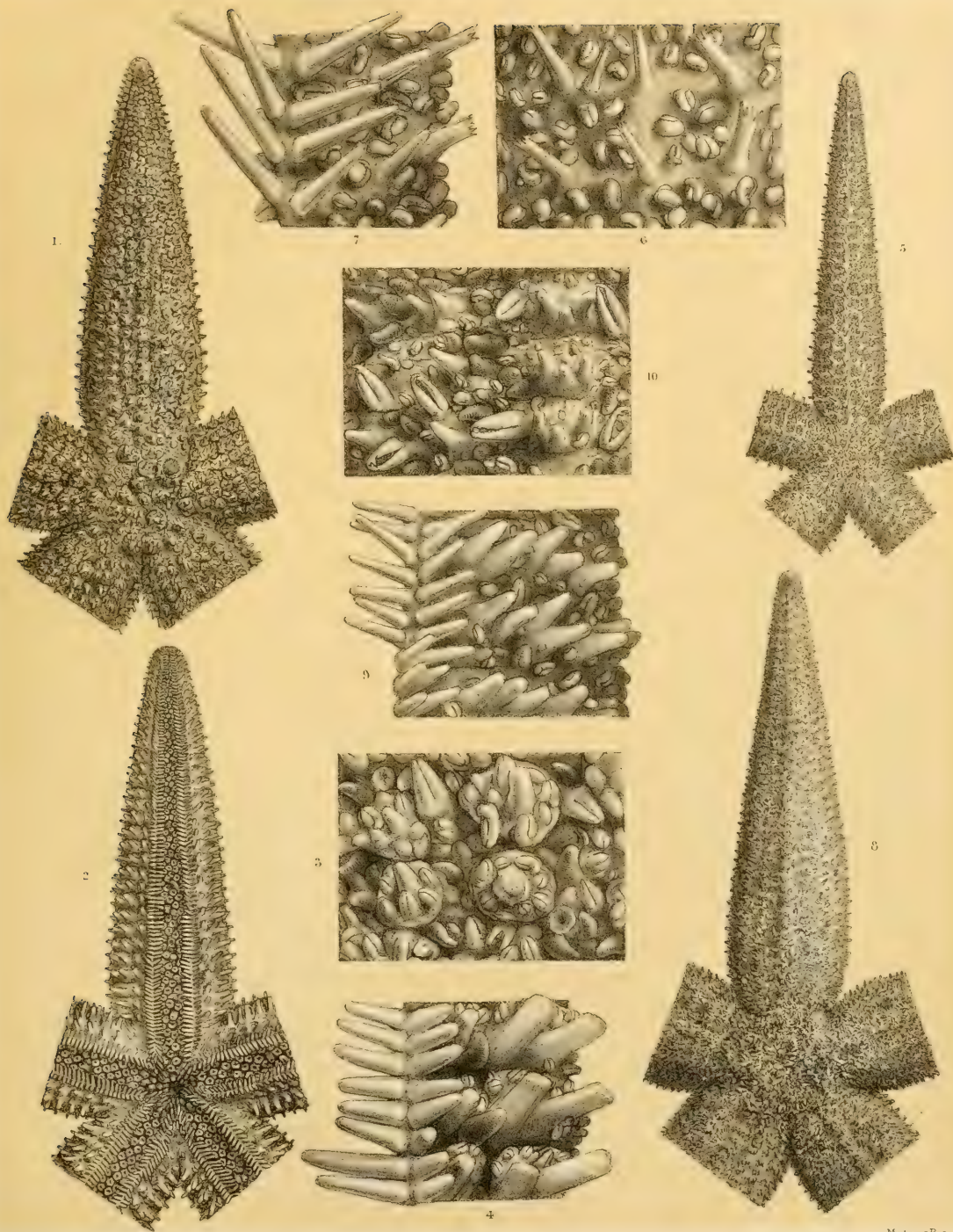
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Figs. 8-10. <i>ASTERIAS (COSMASTERIAS) TOMIDATA</i> , n. sp.	576
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Fig. 10. A portion of the abactinal surface; magnified 8 diameters.



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Minterr. Bros. imp.

1-4. *ASTERIAS GLOMERATA*, n. sp.

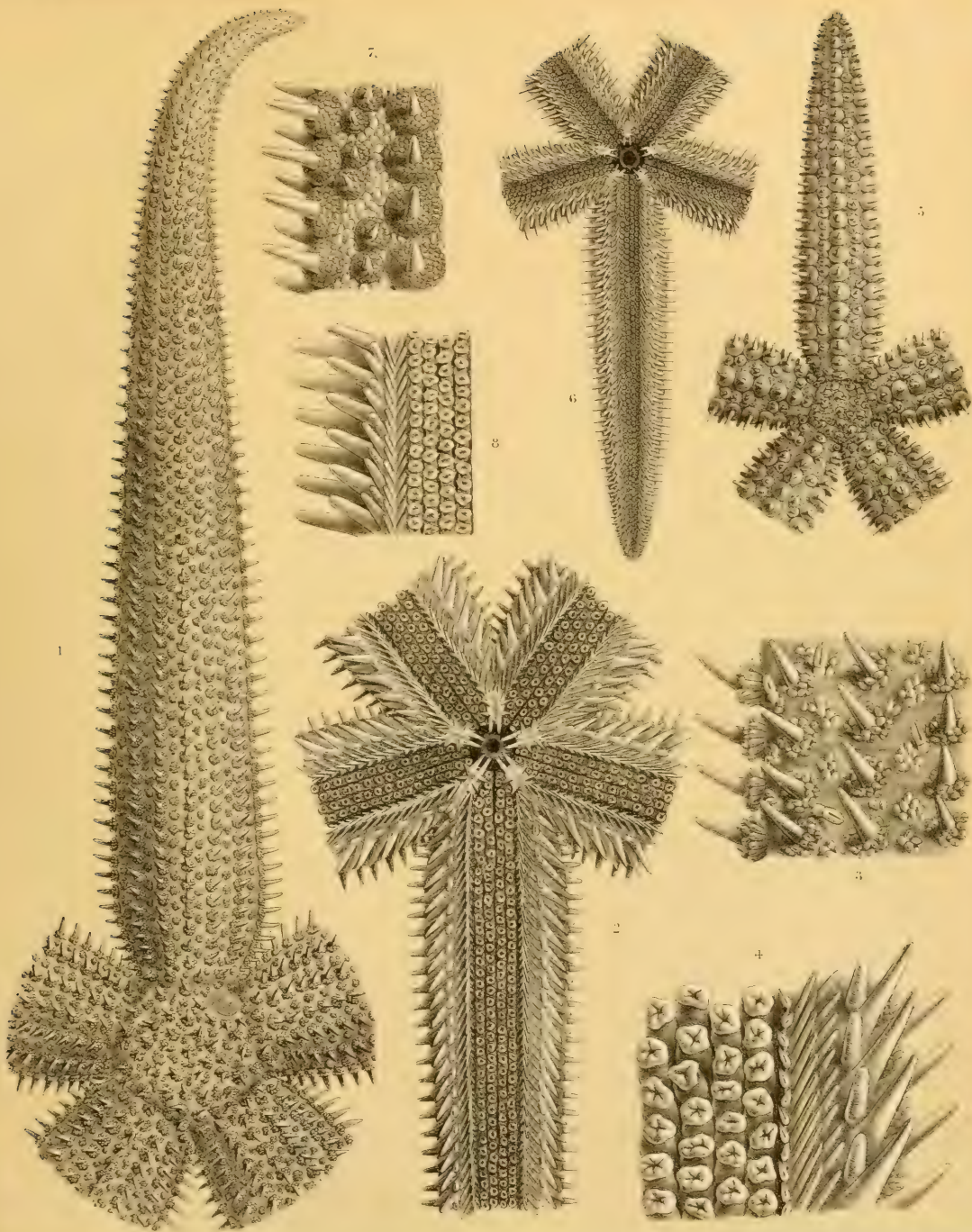
5-7. *PEDICELLASTER HYPERNOTIUS*, n. sp.

8-10. *ASTERIAS (COSMASTERIAS) TOMIDATA*, n. sp.

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Mintern Bros. del et. lit.

1-4. ASTERIAS (STOLASTERIAS) STICHANTHA, n sp.

5-8. ASTERIAS (STOLASTERIAS) EUSTYLA, n sp

PLATE CVII.

PLATE CVII.

Figs. 1-4. *ASTERIAS* (*STOLASTERIAS*) *VOLSELLATA*, n. sp.

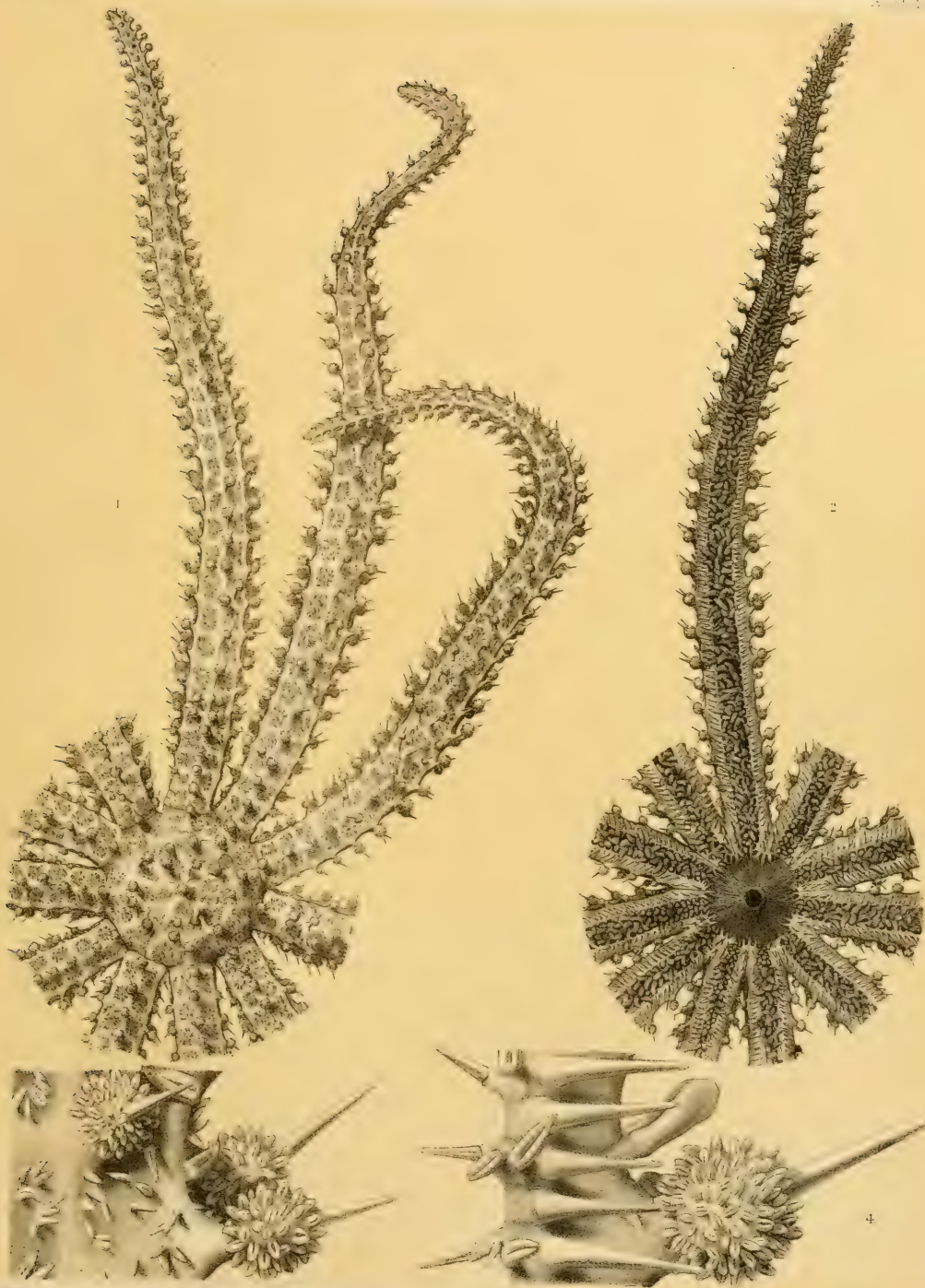
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Fig. 1. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 2. Actinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 3. A portion of the abactinal surface; magnified 9 diameters.

Fig. 4. Adambulacral plates and adjacent portion of the actinal surface; magnified 15 diameters.



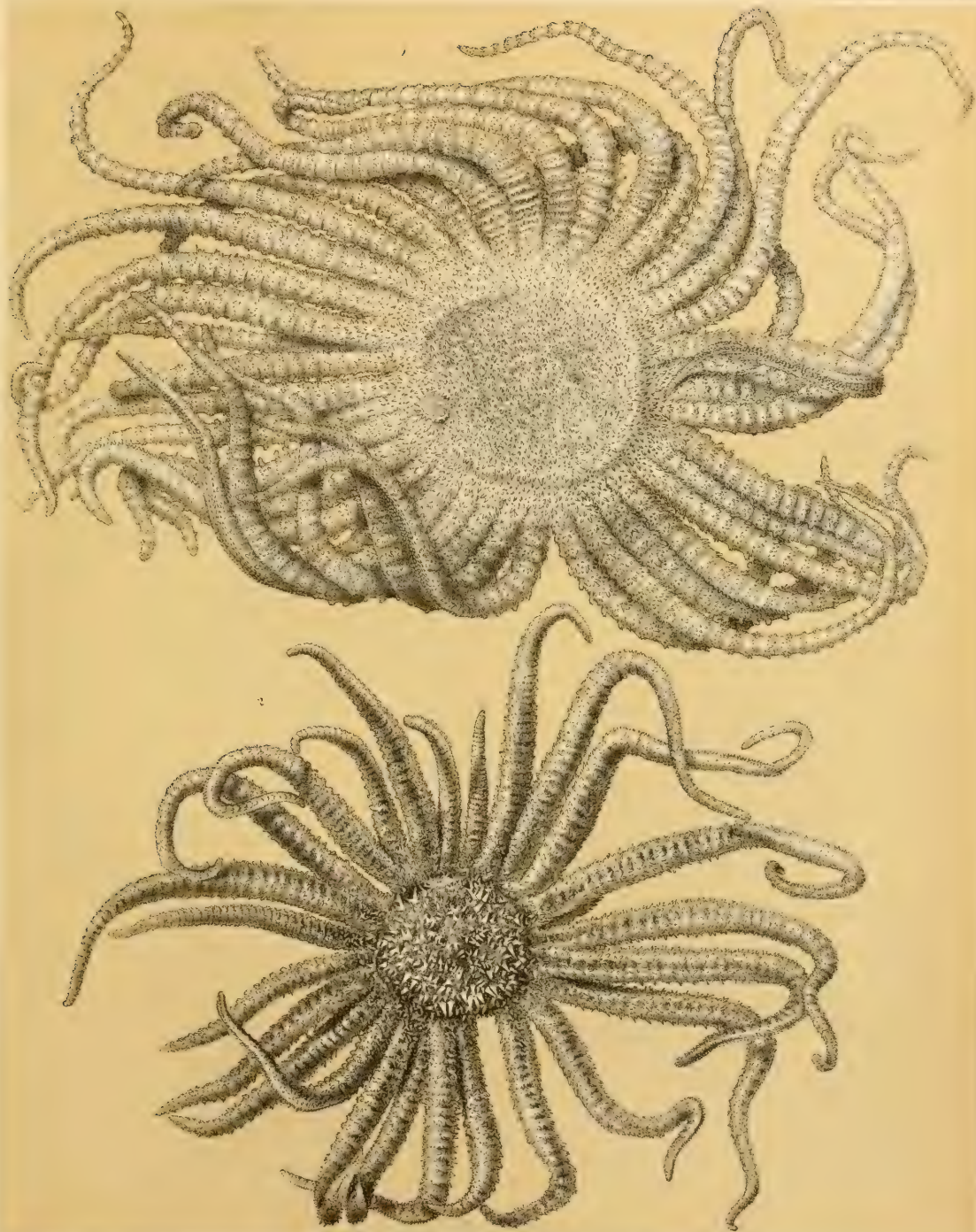
ASTERIAS (STOLASTERIAS) VOLSSELLATA, n. sp.

Monterey, Cal.

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PLATE CVIII.

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Fig. 2. LABIDIASTER RADIOSUS (Lovén), Lütken,	595
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F.H. Michael del. Hollick lith.

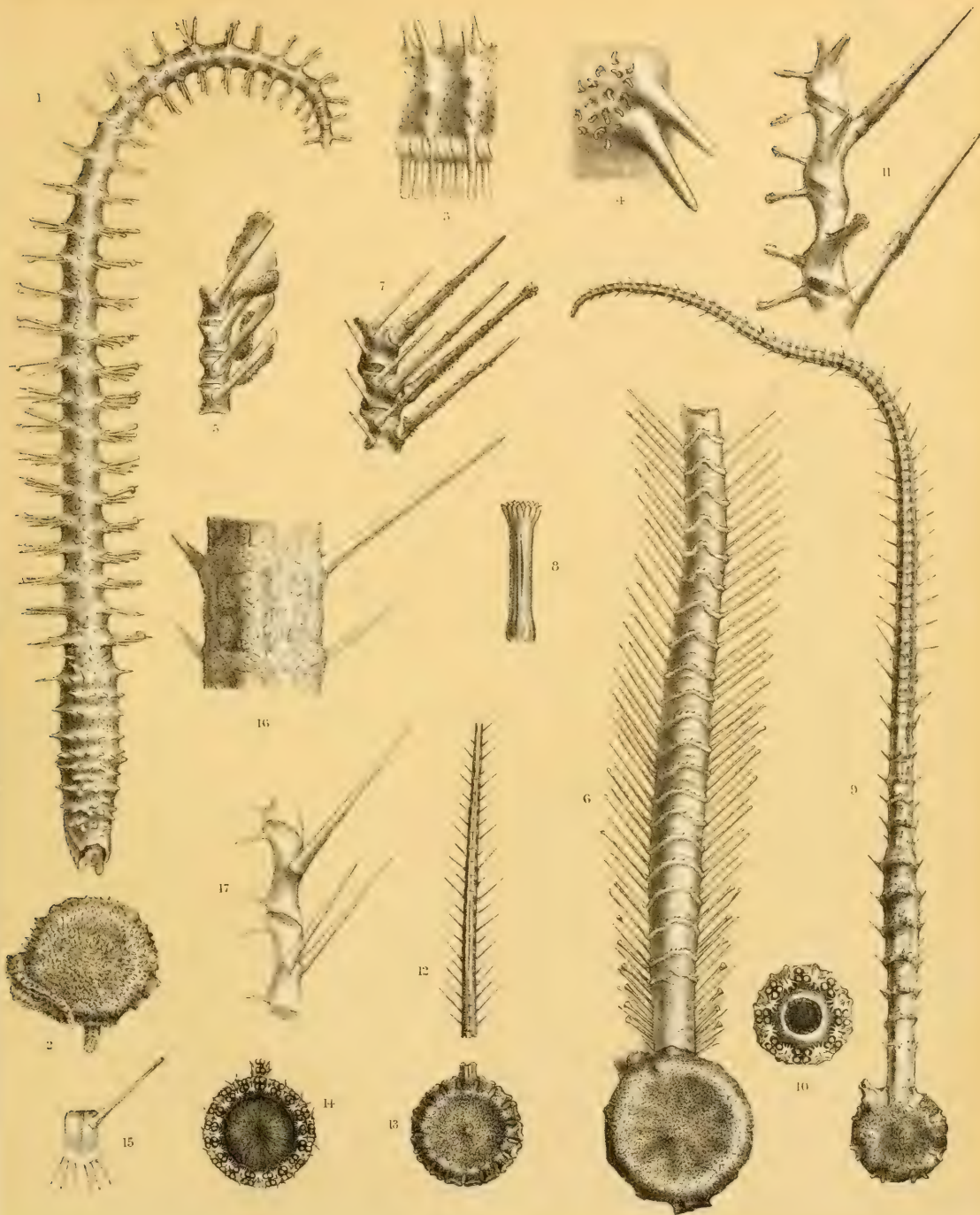
Hanhart imp.

1. LABIDIASTER ANNULATUS, n. sp. 2. LABIDIASTER RADIOSUS, (Lovén), Lütken

PLATE CIX.

PLATE CIX.

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F. H. Michael & W. H. Crowther del et lith

Michael & Crowther

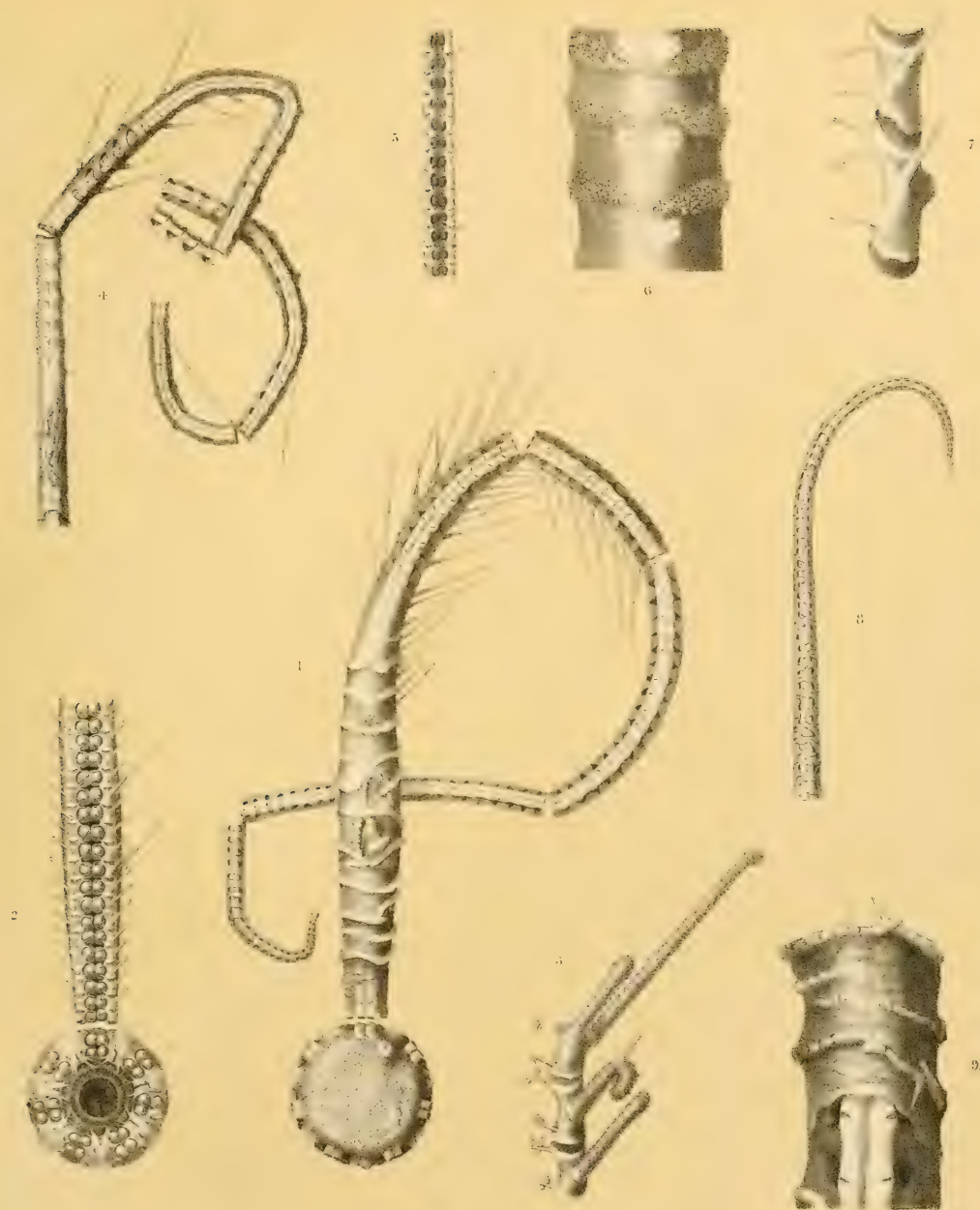
1-5. *ODINIA PANDINA*, n. sp.
9-11. *BRISINGA VERTICILLATA*, n. sp.

6-8. *BRISINGA CRICOPHORA*, n. sp.
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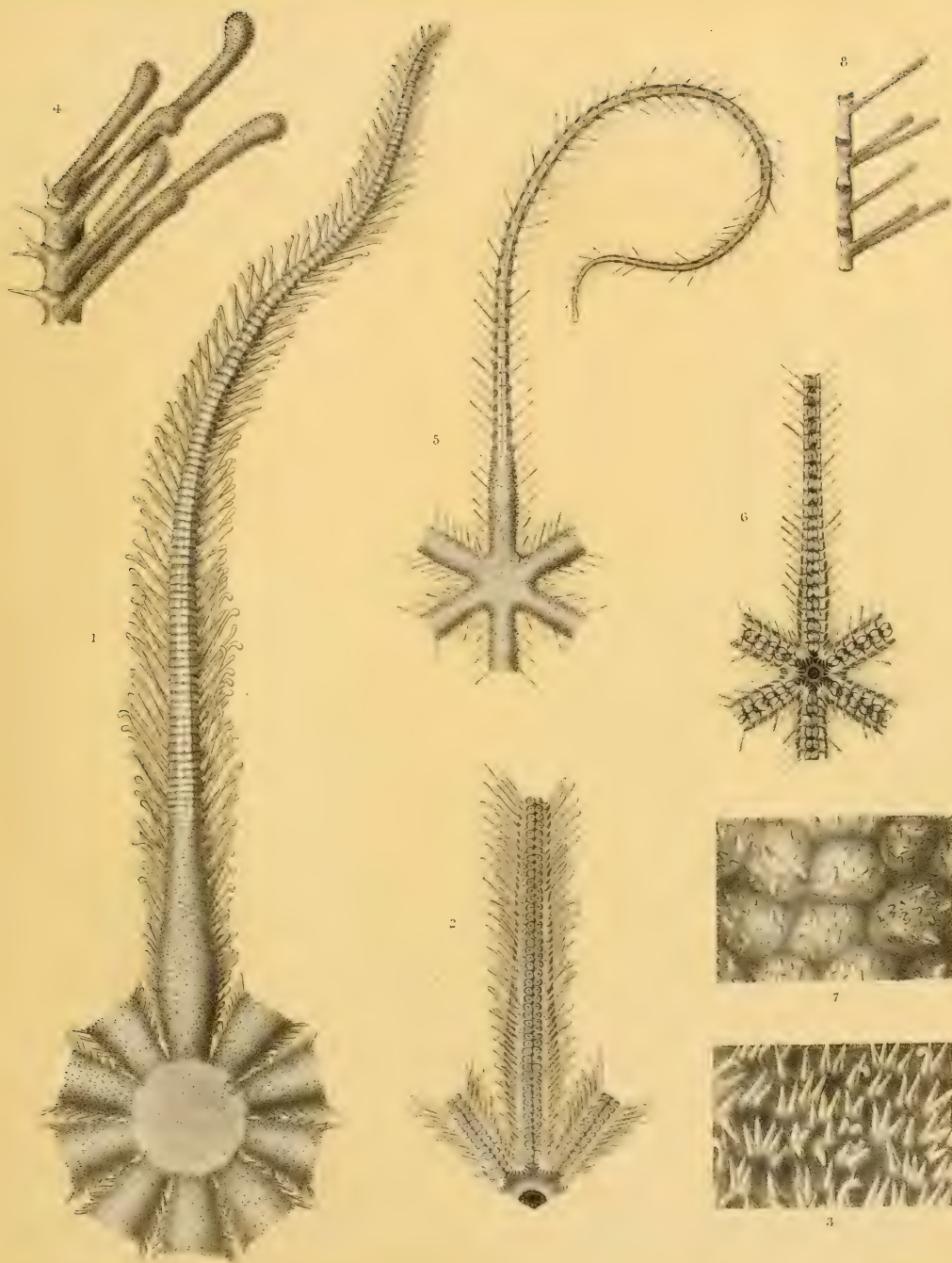
W. H. Cressler del. et lith.

1-3. BRISINGA ARMILLATA, n. sp. 4-7. BRISINGA DISCINCTA, n. sp.
8-9. BRISINGA MEMBRANACEA, n. sp.

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1-4. FREYELLA PENNATA, n. sp.

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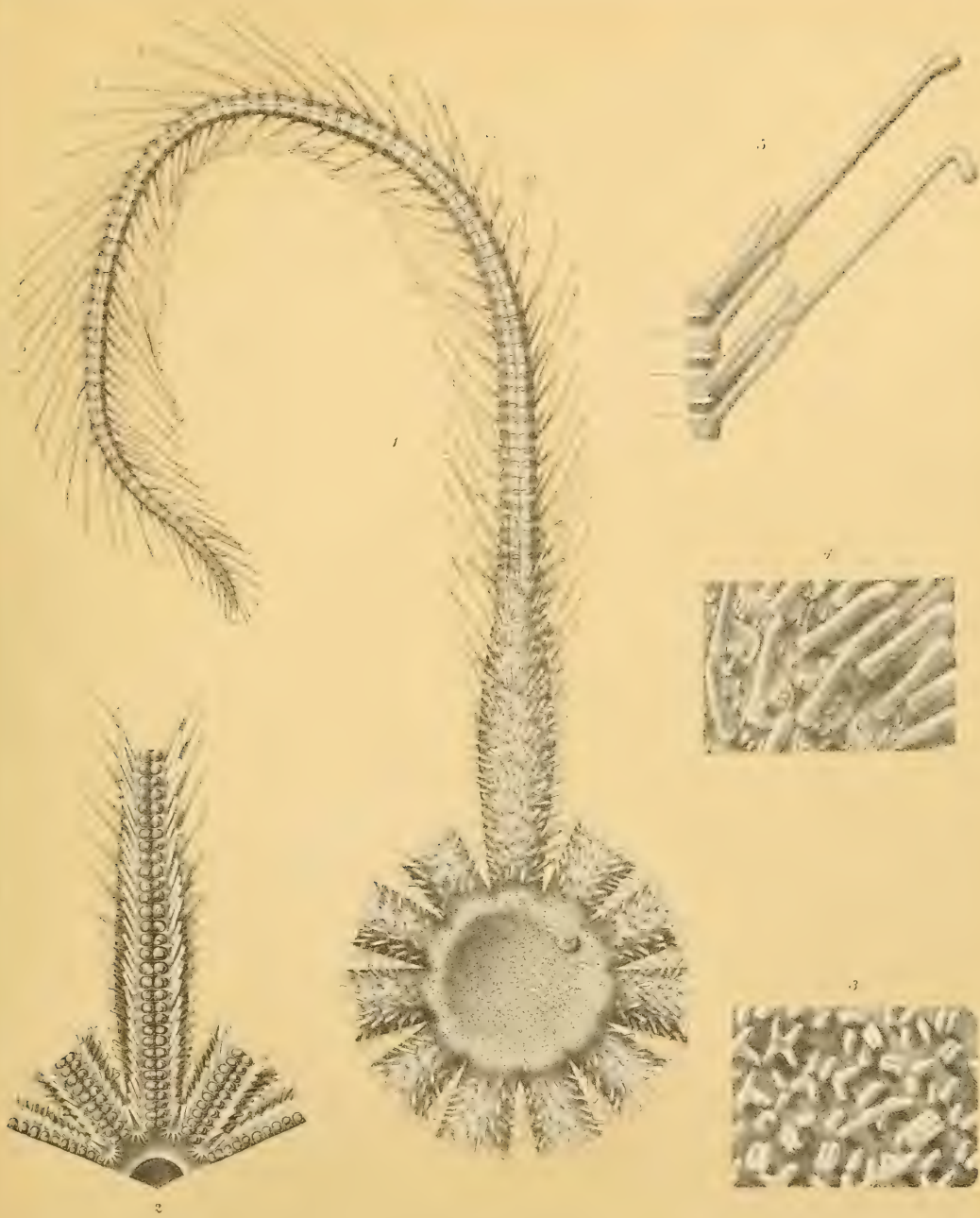
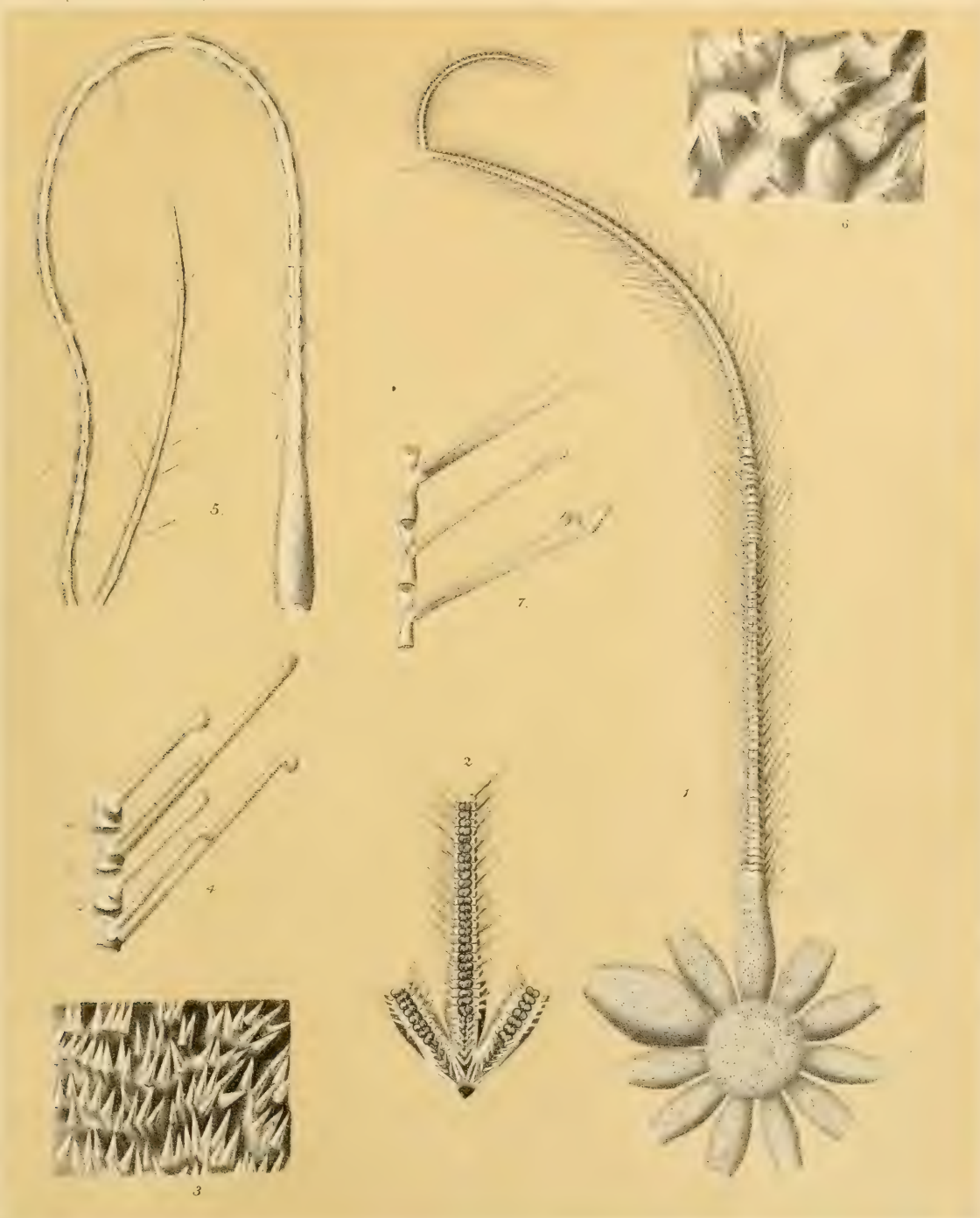


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W.H. Crowther del. Hollick lith.

Hanhart imp.

1-4. FREYELLA FRAGILISSIMA, n. sp. 5-7. FREYELLA ATTENUATA, n. sp.

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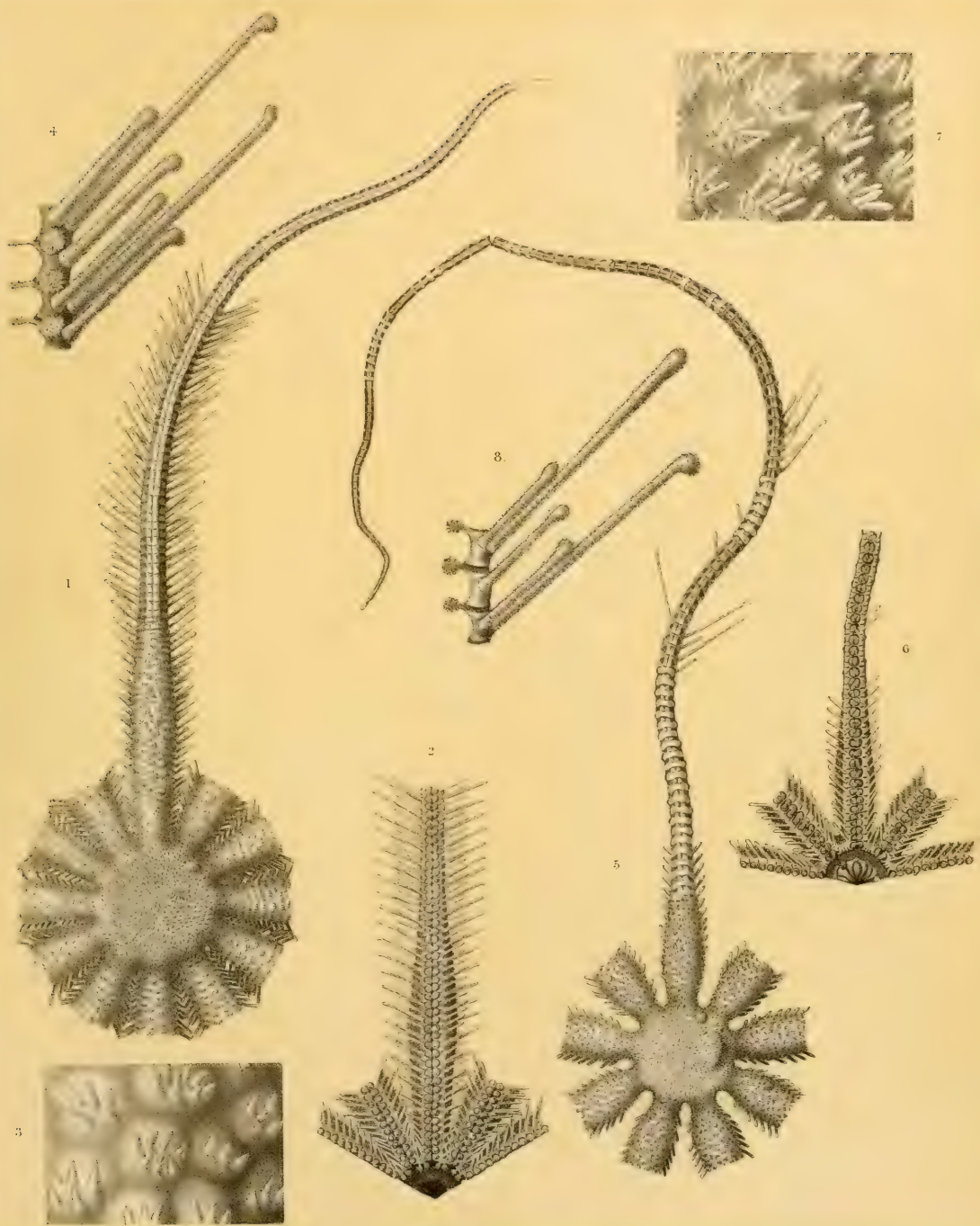
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Fig. 6. Actinal aspect; natural size.

Fig. 7. A portion of the abactinal surface of an ovarian region; magnified 12 diameters.

Fig. 8. Adambulacral plates; magnified 4 diameters.



W. H. Crother del. et lith.

Mintern Bros. imp.

1-4. FREYELLA BRACTEATA, n. sp. 5-8. FREYELLA HEROINA, n. sp.

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PLATE CXV.

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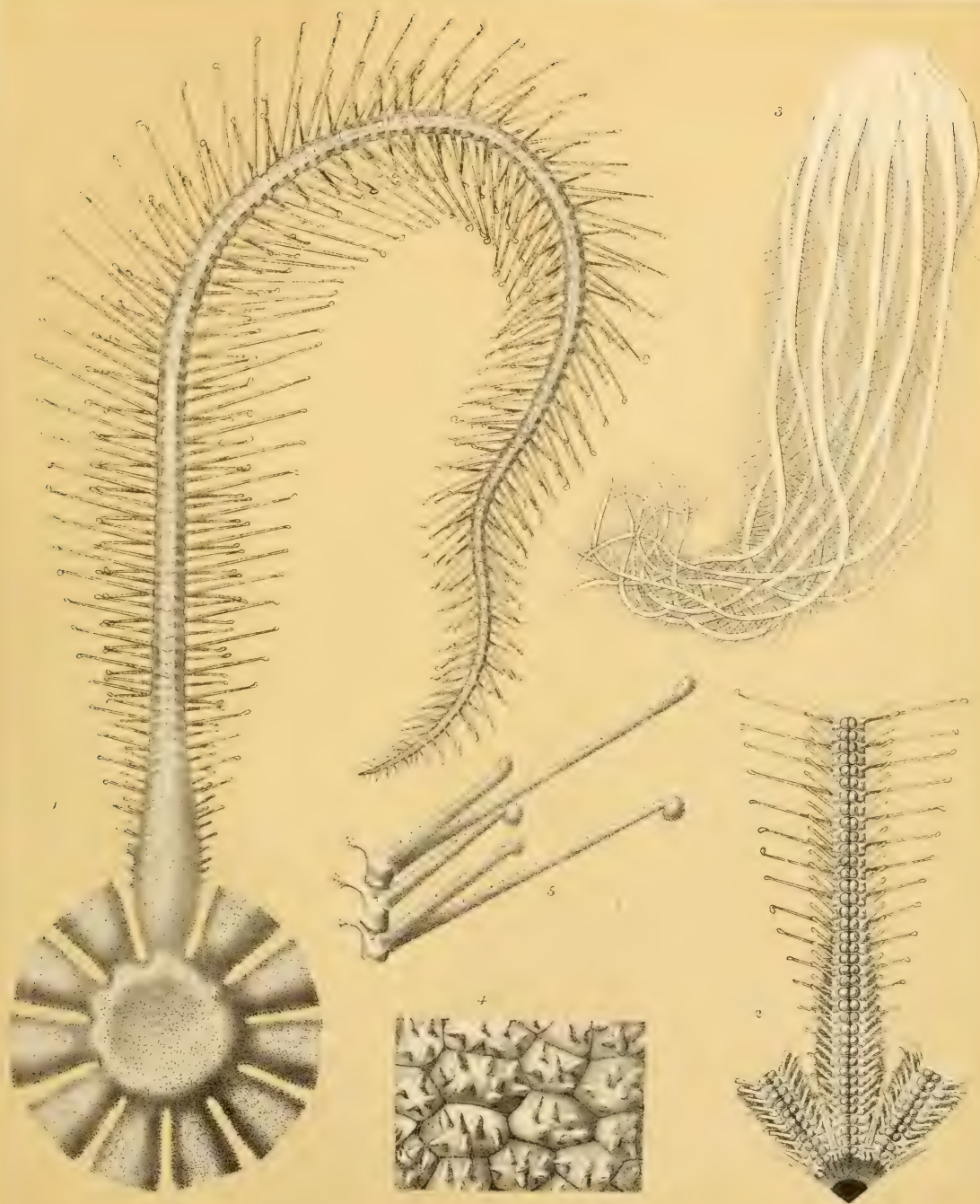
Fig. 1. Abactinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 2. Actinal aspect; magnified $1\frac{1}{2}$ diameters.

Fig. 3. Profile view in outline; two-thirds of natural size.

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Fig. 5. Adambulacral plates; magnified 3 diameters.



W.H. Crowther del. H. Hillebrand sculp.

FREYELLA DIMORPHA, n. sp.

Pl. 100. Freyella dimorpha.

PLATE CXVI.

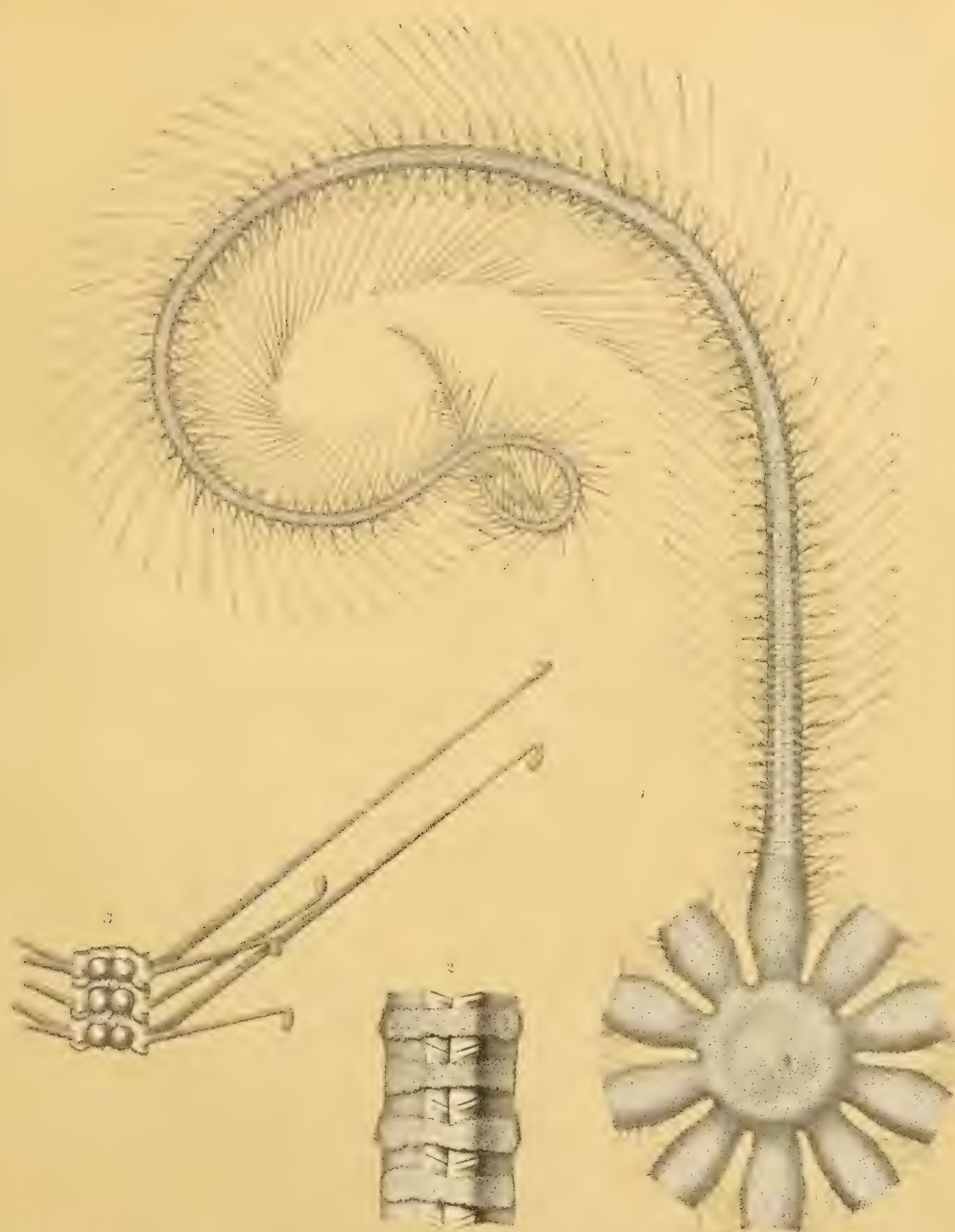
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W.H. Cressler del. Hollick lith.

FREYELLA REMEX, n. sp.

Hanhart 1896

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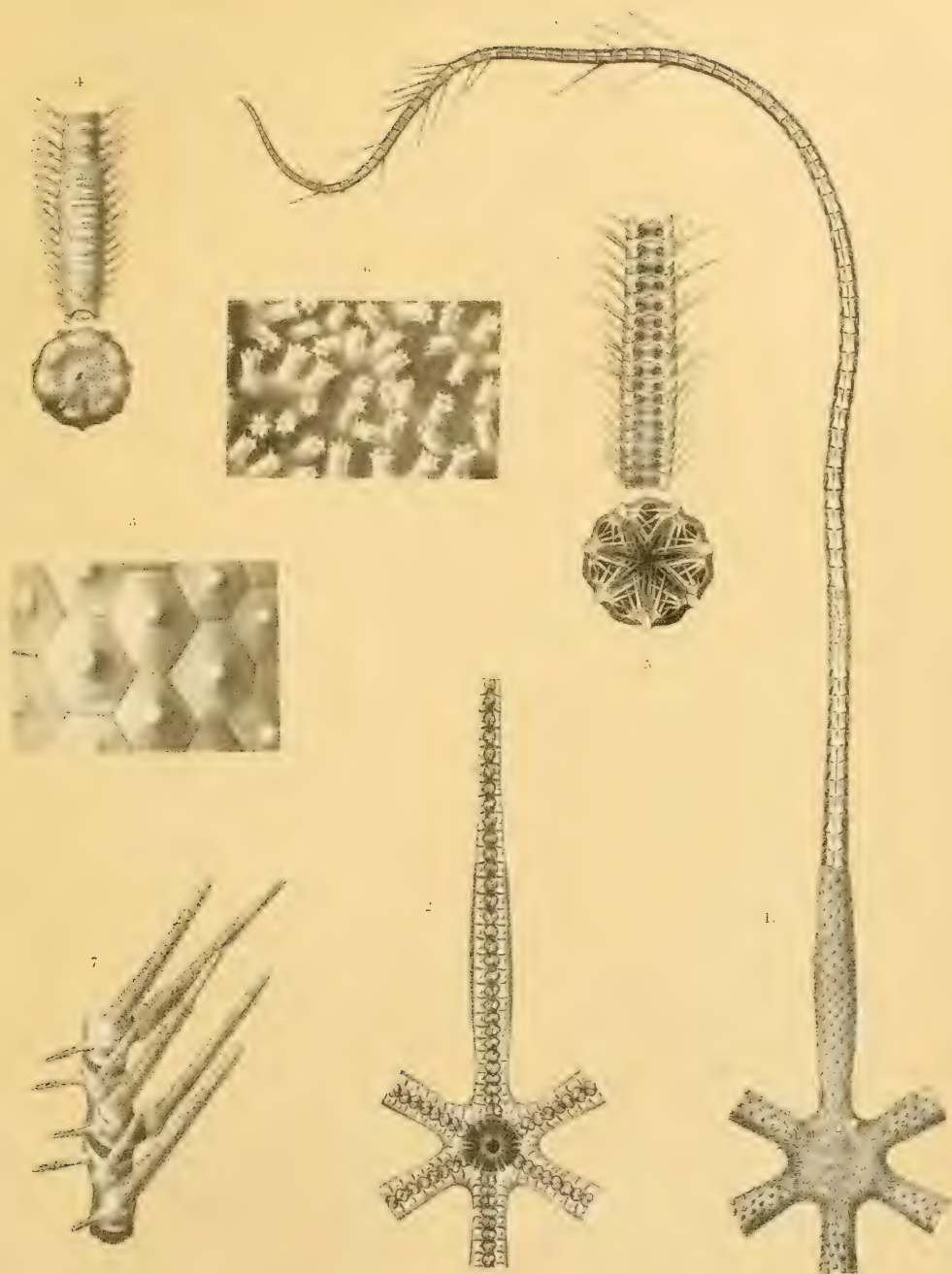
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Fig. 5. Actinal aspect of a portion of a ray and the disk; magnified 2 diameters.

Fig. 6. A portion of the abactinal surface of the disk; magnified 20 diameters.

Fig. 7. Adambulacral plates; magnified 10 diameters.



Musson Deco. 1897

W. H. Crocker del et lith

1-3. FREYELLA TUBERCULATA, n. sp.

4-7. COLPASTER SCUTIGERULA, n. sp.



TRACK OF
H.M.S. CHALLENGER
From 1873 to 1876
Showing the route and observations
The localities at which observations
collected are marked with a cross

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